See Page 41

WHAT'S GOING ON HERE?

Safety Maintenance

EST. 1901 • AMERICA'S PIONEER MAGAZINE IN ITS FIELD • MAY, 1959 • 50¢
Published By Alfred M. Best Company, Inc.

LISTED UNDER REEXAMINATION SERVICE UL OF UNDERWRITERS' LABORATORIES, INC.

HILD EXPLOSION PROOF

VACUUM CLEANERS & FLOOR MACHINES

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UL Model CX

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BULLETINS & CATALOGS

As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE. To obtain copies write in the key numbers on the free-postage card below.

MISCELLANEOUS

Safety Pliers 378
Osborn Mfg. Corp. Safety Plier catalog highlights an important new addition to the growing list of safety tools. Unit is designed to protect workers fingers as well as expensive dies and other equipment. The pliers are made of an aluminum alloy which will flatten but not shatter if accidentally dropped into the die. Tool cannot affect die.

Bulletin Boards 379
A. C. Davenport & Son, Inc. Brochure outlines a complete line of metal and wood frame, cork-backed and changeable letter bulletin boards. Bulletin boards afford a visually pleasing medium for displaying safety messages, posters, directory notices and inter-plant communications. Units are supplied with locks to prevent tampering.

High Visibility Warning Flags .. 380
Davis Emergency Equipment Co., Inc. Data sheet introduces a new fluorescent plastic-impregnated nylon safety flag. The flag is suitable for use by truck fleets, highway departments and school safety patrols, etc. The flag is designed to be easily spotted at night. The fabric may be easily cleaned and will not absorb dirt or grease.

Safety Switch for Hoists 381
W. C. Dillen & Co., Inc. Well illustrated brochure describes a new "Dyna-Switch," which automatically cuts the power supply when a crane or hoist approaches the overload stage. Photos and schematics spotlight the simple operation of the new unit.

Modern Safety Treads 382
Wooster Products, Inc. Brochure highlights a new line of modern, anti-slip stair treads. The new aluminum treads are easy to clean, impervious to oil and grease, tip-proof and completely slip-proof. The treads are designed to fit tightly over wood, concrete, slate, steel, marble and terrazzo.

Revolving Warning Lights 383
Federal Sign & Signal Corp. Attractively designed bulletin outlines a full line of industrial, revolving warning lights to signal moving material hazards, suspended loads, open shafts, etc. They can also be incorporated into automatic production processes to indicate start, stop, or deviation from the normal, etc. Models are also available for automotive installation.

Industrial Incentive Awards 384
Williams Jewelry & Mfg. Co. Brochure spotlights plaques, emblems and incentive awards used to enhance industrial safety programs. Items, from bronze statuary to pocket knives and lighters, are described. All items may be suitably engraved with either a company name or a safety message, etc.

Automatic Roll Feeds 385
Durant Tool Co. A new catalog on automatic roll feeds covers specification data for 15 standard roll feed units and accessories. Accessories include adjustable mounting brackets, vernier adjustment attachments and heavy duty indexers, etc.

Radiation Signs 386
Ready Made Sign Co., Inc. Data sheet offers a complete line of high visibility yellow signs to warn of radiation hazards such as contaminated water and materials, etc. Signs conform to the color standards of the Atomic Energy Commission.

Fiberglass Ladders 387
Putnam Rolling Ladder Co., Inc. Fiberglass ladders, suitable for electrical work and use in chemical plants, are chemically resistant, non-conductive, waterproof and feature non-slip rungs. Brochure describes a full line to meet most of the maintenance requirements specified by modern industry.

INDUSTRIAL HYGIENE

Topical Anesthetic 388
Arner-Stone Laboratories, Inc. Data sheet spotlights a liquid anesthetic in a convenient aerosol dispenser. Liquid quickly reduces pain, the danger of shock and guards against infection. Liquid is water soluble to allow easy removal.

Safety Plumbing Fixtures 389
Speakman Co. Brochure spotlights the importance of emergency showers and eye wash fixtures. Units may help to save eye sight in the event of an accident to the eyes such as spilled chemicals, etc. Eye wash fixtures also help to relieve eye fatigue due to strain, heat smog or fumes.

Electronic Precipitators 390
American Air Filter Co., Inc. New bulletin describes high velocity "Electro-Cell" electronic air cleaners. Operational principles, collector cell construction details and design features are illustrated. Also described is a new dual-voltage, "Fail-Safe" power supply unit. Complete specifications are reported in the unit's range of application, from 1,000 to 240,000 CFM.

Emergency Oxygen Units 391
Ohio Chemical & Surgical Equipment Co. New leaflet describes case and cart model emergency oxygen and resuscitation units. Depending upon the model, the units will supply from 30 to 60 minutes of oxygen. Safety features include a built-in safety valve to protect patients from excessive pressures.

(Continued on the next page)

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MAY, 1959 **Please send me the following free data**

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Free Bulletins (Cont'd)

FIRE PROTECTION

Portable Fire Extinguishers 392
American LaFrance Corp. Brochure highlights the need for having the right fire extinguisher in the right place at the right time by describing carbon dioxide, dry chemical, soda-acid, foam, vaporizing liquid, pressurized water and anti-freeze extinguishers. Both the portable and wheeled units are approved by Underwriters' and Factory Mutual Laboratories.

Fire Retardant Paints 393
Albi Mfg. Co. Brochure introduces a new fire retardant paint applied like ordinary paint which eliminates fire hazards and localizes interior fires. Available in a wide range of colors, the paint may be safely washed and scrubbed without losing its effectiveness.

Explosion-Proof Switches 394
Micro Switch, Div. of Minneapolis-Honeywell Regulator Co. Data sheet describes a series of rain-tight, explosion-proof switches. Units are designed for fuel or chemical handling devices, missile launching equipment and hazardous outdoor installations.

PERSONAL PROTECTION

Work Clothes Dispenser 395
Change-O-Matic Corp. Leaflet introduces a work clothes dispenser that automatically collects soiled work clothes and distributes clean garments. A single unit has been designed to service up to 16 employees. Unit eliminates the need for company personnel to handle or distribute work garments.

Safety Equipment for Welders .. 396
Flood Safety Products Co. Folder illustrates a number of welding helmets and shields, goggles and respirators. Complete specifications and pricing schedules are given.

Welding Lenses 397
Thermacote Co. Data sheet presents specifics on a complete line of high quality, blue-green plano helmet lenses which eliminate fatiguing and harmful amber tints. Spatter-proof, plastic, cover lenses are also featured.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
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112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
117	Safety Shoes
118	Safety Boots
	FIRST AID AND HYGIENE
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123	Wash-up Facilities
124	Salt Tablets
125	Resuscitators
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
130	Throat Medication
131	Eye Wash Fountains
134	Hearing Testers
135	Hearing Protectors
136	Noise Analysis Equipment
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	GUARDS
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181	Vacuum Sheet Lifters
182	Valve Operators
184	Safety Lock-Outs
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193	Employee Safety Guide
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Editorial and Advertising Offices:
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U. S. and Canadian $4 (two years $6)
Foreign $5 (two years $8)
Single issues 50c. Also quantity rates

Safety Maintenance

Volume 117, Number 5 **May, 1959**

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Cover picture by courtesy of Ansul Chemical Co.

AMERICA'S PIONEER MAGAZINE IN ITS FIELD

Published monthly by Alfred M. Best Company, Inc. Publication Office, Columbia Turnpike, Box 232, Rensselaer, N. Y. Editorial and General Offices, Best Building, 75 Fulton Street, New York 38, N. Y. Second-Class Postage paid at Rensselaer, N. Y. Subscription rates: $4.00 Per Year in the United States; $4.00 in Canada; Foreign $5.00. Single Copies, 50 cents.

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- **What are the safety and maintenance factors of specific paints . . . the importance of the Color Code and where to use red, green, white, orange and even purple . . . who specializes in such paints?**
- **What are the most economical types of materials handling equipment for you?**
- **What is the importance of a uniform code for safety signs and signals . . . where can you find materials which will fit a planned program?**
- **What are the essentials for hand soaps and cleansers to protect the skin . . . the types of protective creams to prevent skin rash?**
- **What are the various types of electrical equipment approved by the Underwriters' Laboratories for specific conditions of hazardous gases, vapors and dusts . . . who makes them?**
- **What are the vapor hazards of flammable liquids . . . what fire prevention containers and equipment will do exactly the right job?**
- **What is the range of protective clothing, such as 70 different types of protective gloves . . . the specific merits and uses of each one—which is the very best for you?**
- **What can you save in time, money and production by selecting the right ladder for an operation?**
- **When will awards and placques speed up production?**

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● ONLY THE AUDIENCE LIKED THE SHOW

We're on reasonably safe ground in assuming that our SAFETY MAINTENANCE subscribers living in Denver did not attend the Greater New York Safety Conference in mid-April. It's equally safe to say that our subscribing safety directors in Seattle or New Orleans were not among those present at the All-Ohio Safety Congress in Columbus. We were there in your place. In future issues we will bring you the most useful parts of outstanding speeches and addresses, just as we have done since SAFETY MAINTENANCE covered the first safety convention ever held in the United States nearly fifty years ago.

Not only can no safety director or operating official attend every safety convention but he cannot hope to be in the audience of every session of just a single conference. Here is where the editorial staff of SAFETY MAINTENANCE acts as your sole representative in bringing you material of practical value you can either adopt or adapt in your own plant.

Once there opened on Broadway a theatrical production which was lambasted by every newspaper critic in New York. The play attracted packed houses for seven years. In other words, no one liked the show but the capacity audiences.

So it is with speeches. No one likes them but our subscribers who send in letters by the hundreds, either taking healthy issue with the authors or asking for reprints and reproduction rights.

If a recognized authority or expert is willing to give his time and talents to presenting safety's "do and don't" approach to accident, fire and health problems to an audience of perhaps only a hundred listeners, this magazine owes to its subscribers living a thousand miles away the obligation of disseminating factual and helpful material based upon the speaker's own experience and observations.

Never underestimate the power of a gimmick. If a speaker, carefully chosen for his own background, authority and company connection, describes a gimmick for, say, eye or foot protection, fire prevention or the control of off-the-job accidents, we will pass on that gimmick. It may have been outlined from a dais in New York at exactly the same moment as another is put forward from a rostrum in Philadelphia or Detroit. Our job of editing assures you of protection against platitudes, long-winded, sleep-producing statistics and personal prejudices.

For every speech or address given the light of day in SAFETY MAINTENANCE, countless numbers are relegated to a wide-mouthed waste-basket. The remainder, edited and used in this publication, clearly shows that the author or speaker had something to say. All we do is to discharge our first editorial obligation by taking the show on the road to a nationwide audience.

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the future shows

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Thirty-Second Annual Eastern Pennsylvania Safety Conference. Harold A. Seward, Secretary-Treasurer, Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

Niagara Falls, N. Y. *May 5–7*

Nineteenth Western New York Safety Conference (Hotel Niagara). Clifford H. Seymour, Executive Secretary, Western New York Safety Conference, P. O. Box 315, Niagara Falls, N. Y.

Rochester, N. Y. *May 12–14*

1959 Genesee Valley Safety Conference & Exposition (Manger Hotel). Earl R. Wallace, Vice President, Genesee Valley Safety Conference, 55 St. Paul St., Rochester 4, N. Y.

Roanoke, Va. *May 18–20*

Virginia Safety Association Conference (Roanoke Hotel). James T. Wadkins, Mgr., Virginia Safety Association, 2051 Monument Ave., Richmond 20, Va.

Duluth, Minn. *May 21–22*

Thirty-fifth Annual Conference of the Lake Superior Mines Safety Council (Hotel Duluth). Allen D. Look, Secretary, Lake Superior Mines Safety Council, 321 Federal Bldg., Duluth 2, Minn.

Gatlinburg, Tenn. *June 18–20*

Fourth Annual Meeting of the Health Physics Society. G. T. Saunders, Health Physics Society, c/o Kewaunee Mfg. Co., Adrian, Mich.

Chicago, Ill. *September 21–25*

Fourteenth Annual Instrument-Automation Conference & Exhibit, (International Amphitheatre). Fred J. Tabery, 3443 S. Hill St., Los Angeles 7, Calif.

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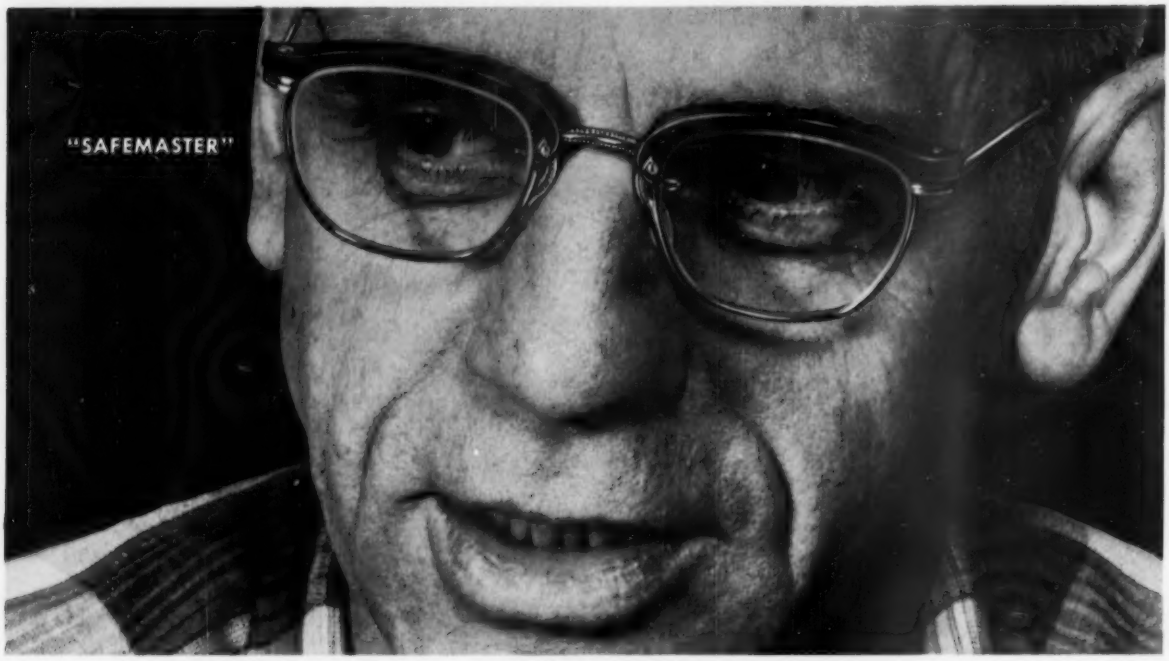


"2-TONE." Another late model addition to AO's line of Ultrascopic safety glasses. Onyx on crystal acetate. Light, strong, they give durable protection against impact. Especially recommended for chemical and physics lab work, electrical operations etc., where sparks are particularly hazardous. Available with adjustable nose pads. The AO plaque on frame is your guide to true safety. (Catalog No. F9700)

NOTE: All 3 series available with clear or Calobar lenses. (Calobar lenses protect against glare, heat, ultraviolet and infrared as well as impact.)

ULTRASCOPIC FRAMES in Pink Crystal or Mahogany. Available with or without side shields. Shields are perforated for ample ventilation and to prevent lens fogging. Their shape simplifies ℞ fitting and provides the protection of a cup goggle. An exclusive AO security feature is the patented eyewire which anchors lens against deflection toward eye. Frames are flame-resistant cellulose acetate butyrate. (Catalog Nos. F9500 — pink crystal, F9500M — mahogany)

Safety Service Centers in Principal Cities

American Optical
COMPANY
SAFETY PRODUCTS DIVISION
SOUTHBRIDGE, MASSACHUSETTS

YOUR NEAREST AO SAFETY PRODUCTS REPRESENTATIVE CAN SUPPLY YOU

Always insist on the AO Trademark on Lenses and Frames

(For details, use Key # E-5 on card on page 1)

ACCIDENTS IN ADVANCE

SPOT

Get the Jump on Your Accidents

If your plant operations include handling of materials, using handtools, or operating machines . . . and more specifically, fabricating metals . . . then a recent analysis of injury and accident causes in the boilershop-products industry by Frank S. McElroy and George R. McCormack of the Division of Industrial Hazards, Bureau of Labor Statistics, U. S. Dept. of Labor, should alert you to where and why accidents and injuries are likely to occur and how they can be prevented.

During 1952, the Bureau of Labor Statistics conducted a special, detailed survey, covering the preceding year, of work-injury rates in the boilershop-products industry. The final report of that study presented an analysis of injury rates by product, plant size, region and operating departments. The new study (U. S. Dept. of Labor Bulletin No. 1237: November, 1958) was designed to supplement the previous survey by presenting information on how and why injury-producing accidents occur in the industry.

The data for this study were collected in personal visits to 136 plants. The period covered was the same as that for the earlier survey. Although this resulted in a considerable time lag, there is no evidence that the pattern of accidents has changed during the interval, since the methods of operation are essentially the same. These 136 plants employed nearly 28,000 workers, about 44 percent of all workers in the industry. Since the objective was to obtain individual accident case records, only plants which had previously reported injuries were visited.

The Bureau representatives transcribed the following data from the original accident records of the plant:

a. place where the accident occurred;
b. nature of injury and part of body injured;
c. object or substance producing the injury;
d. type of accident (how the injured came into contact with the injuring material);
e. hazardous working condition and/or unsafe act leading to the accident.

Individual case records for 2,017 disabling injuries were collected. Included were five fatalities, one permanent total-disability, and 103 permanent-partial disabilities. The other 1,908 cases were temporary-total disabilities.

What causes accidents?
How and why are employees injured?
How can accidents be prevented?

The boilershop-products industry is composed of establishments primarily engaged in manufacturing industrial, power, and marine boilers; smoke stacks; heavy tanks; and other boilershop products; and fabricated plate work which involves the cutting, punching, bending, and shaping of steel plates for other industries, or for assembly on the job.

The larger boilershops tend to concentrate on production items and are commonly departmentalized. Workmen in such shops usually perform only 1 or 2 specific operations, becoming especially adept at them. In the miscellaneous steel-plate fabricating plants, the end products are usually custom made according to the specification of a contract. Large plants in this group generally have departmentalized their operations, but workers in the small plants frequently perform a number of operations, often being assigned to complete major portions of a particular

job. As a result, the small plants have little or no departmental organization.

Whether the operations are departmentalized or not, however, they follow, basically, the same general pattern. Metal stock is laid out by marking, it is then cut and shaped, and finally, it is assembled.

Layout Hazards

The layout area is usually located near the storage yard from which metal stock may be carried by cranes or other mechanical handling equipment. A layout man following a template or blue print, marks the stock with a center punch, chalk, or paint, to indicate the operations which are to be performed. Templates may be made of metal, wood, or paper depending on the extent of their use.

The chief hazards of the layout departments are those associated with handling materials. Strained muscles through overexertion and lacerated hands or fingers from contact with steel slivers may result from lifting, turning, and carrying metal stock. In addition, workmen may drop material on their feet or set it down on their hands or fingers. When it is moved by crane or other equipment, workers under that equipment may be struck by the slingload or by material falling from it. Workmen may pinch their fingers while hooking or clamping loads and, unless a handline is used, they may crush their fingers in the sling as they guide the load.

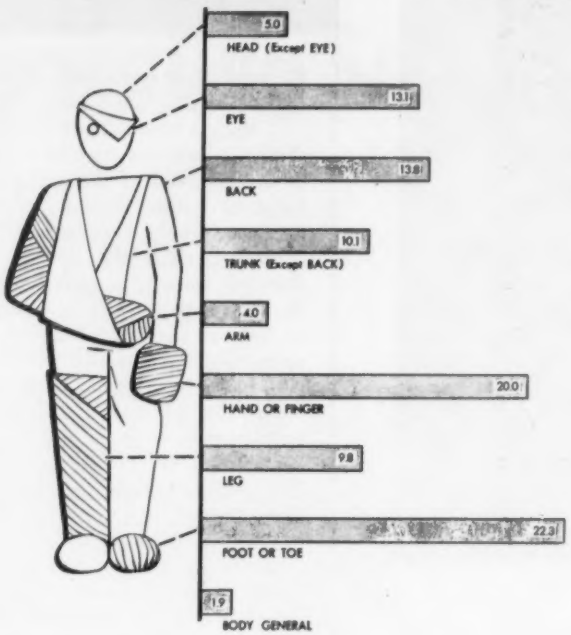
Some plants make their own templates. In that work, hazards associated with machine operations are common. Workmen may come in contact with the points-of-operation of circular saws and other machines; they may be caught by unguarded belts, gears, etc.; or they may be struck by objects thrown by the machines, i.e., kickbacks. In addition, in the manufacture of wood templates, sawdust may be blown or thrown into workmen's eyes causing serious damage.

Haphazard piling in storage yards may cause piles of materials to collapse on workmen. Uneven working surfaces present slipping and tripping hazards which are accented by poor housekeeping such as paint, spilled or dropped, on floors. Fingers or hands may be bruised through the misuse of hammers, used with center punches in marking the stock.

Chart 1. DISABLING WORK INJURIES

In the Boilershop-Products Industry By Part of Body Injured

Percent of Disabling Injuries



UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

Machine Hazards

The metal stock after layout undergoes a series of machine operations where equipment operators perform work as indicated by the layout men. Stock is cut to size with a burning torch or machine shears and the edges are smoothed by a planer or grinding wheel. Rolls bend or curve steel plates to form shells for boilers and tanks. Press brakes and bending rams form angles in the metal, and tube-bending machines shape boiler tubes without buckling their walls. Finally, drills and reamers are used to cut holes for rivets.

Hazards associated with the operation of powered equipment are common in these departments. Points-of-operation are frequently unguarded as are gears, belts, pulleys, etc. These hazards frequently are intensified by the improper layout of operations. Inadequate space and lack of clear passageways may require equipment operators, as well as others working in the area, to pass near the danger points.

In addition to the hazard of being caught in, or being struck by, moving parts of equipment, workmen in these operations are likely to suffer injuries by contact with sharp-edged metal chips. Sometimes, the chips are thrown by the machines and present a serious eye hazard. The most common, but less serious, injury consists of cut or lacerated hands experienced in removing the chips from machines, especially drills. Occasionally, the chips are hot and may produce burns.

The movement of stock from one operation to another is a danger in machine operations. Large and heavy pieces of metal are usually transported by crane or other mechanical equipment but small pieces are generally moved by hand or handtruck. The handling hazards noted under the layout departments are, therefore, common in machine operations.

Oils are used extensively as lu-

bricants and coolants in many of these operations. Prolonged contact with these oils may produce dermatosis. In addition, the lubricants, when spilled or dropped on the floors, create slipping hazards.

Scraps of metal, discarded from machine operations, are frequently dropped on floors where they become tripping hazards. Elevated platforms, often unguarded, on which operators of large machines frequently stand, are another potential source of falls. Heavy metal plates occasionally are heated to facilitate machine operations. Workmen in those operations, therefore, may be burned.

After the metal has been cut and formed, it is assembled. The pieces may be bonded by electric welding or by riveting. Riveting is common in the manufacture of boilers and other pressure vessels.

Hazards originating in handtool operations are common in the assembly departments. In riveting operations, the riveting hammer and the bucking bar are the most commonly used handtools. However, reamers are used frequently to aline rivet holes before "driving" rivets. In addition to the welding torch, chipping hammers and grinders are used extensively in welding operations to smooth the welds.

Contact with the point-of-operation of handtools is an ever-present hazard, since that equipment is seldom guarded adequately. Electric handtools, frequently ungrounded, present a serious electrical hazard. Small particles thrown by handtool operations endanger the eyes of all workers in the area. In addition, the small particles are frequently hot and may inflict burns.

Isolating or shielding welding operations in this industry is difficult because of the size of the products fabricated. Consequently, nearly all workers in the industry are subjected, in some degree, to ultraviolet rays. Welders work occasionally in confined or close quarters. As a result, welding fumes may replace oxygen in those areas to a dangerous extent unless artificial ventilation is provided.

Hot rivets are usually thrown to the riveting crew. Misjudgment by the rivet passer or by the rivet catcher may result in hot rivets falling on other workmen. Metal rivets and welds retain their heat for some time. Workmen may be burned, therefore, by touching the hot surfaces.

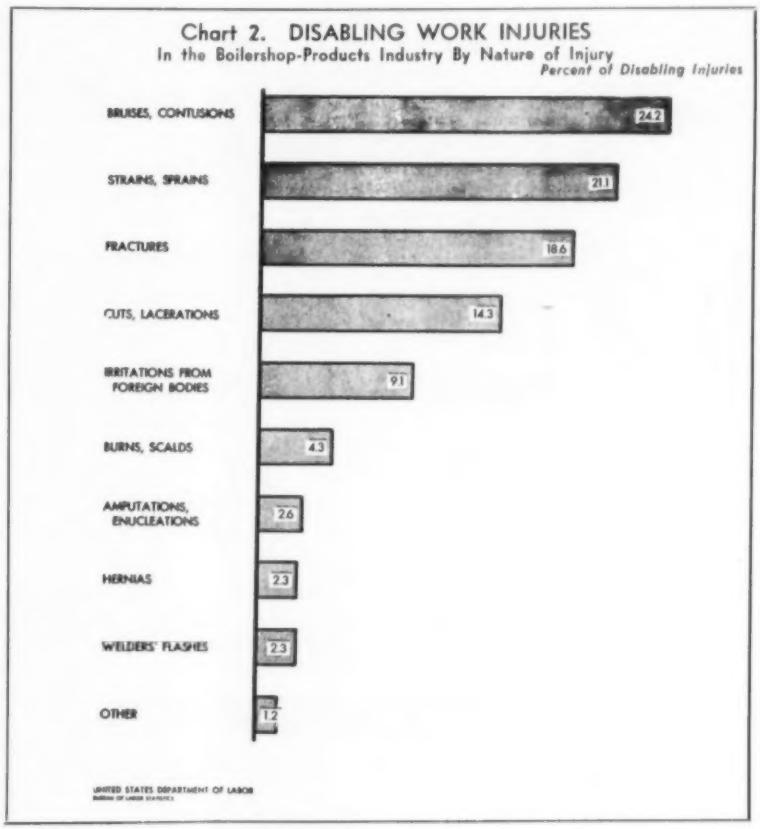
On large fabrications, much of the assembly work must be performed well above the floor level. Safety in these operations requires the provision of stable and guarded working surfaces. Unfortunately, the provision of safely designed working platforms for this work is not common in the industry, and the fabricators frequently climb on the assemblies or utilize makeshift platforms to perform their work. Along with the hazard of falling, there is the possibility that the assemblies, unless securely supported, may collapse under the workers or topple over on them.

Activity of the Injured

More than three-fourths of all the reported injuries occurred in the course of three activities—handling materials, using handtools, and operating machines. Two of every five injured employees were handling materials or equipment at the time of their accidents. Most of them were lifting materials, but others were injured while they were holding, carrying, placing, pulling, pushing, or rolling materials or equipment. In general, these injuries were not severe—less than 5 percent of them resulting in serious disability.

About one-fourth of the disabled workers were injured while using handtools. Those most frequently used were welding and burning torches; hand grinders, buffers, and sanders; hammers and sledges; and wrenches. None of these injuries resulted in death and only 4 percent in permanent disability. However, because their permanent injuries were relatively severe, workers who were injured while using handtools had a slightly higher average disability (66 days) than those who were injured while handling materials (62 days).

One in seven of the injuries occurred in the operation of machines and other mechanical equipment. About a third of these injuries occurred in the operation of cranes



and other hoisting equipment. More than 12 percent of them resulted in death or permanent disability. Consequently, their average disability, 135 days, was nearly 60 percent higher than the average for all injuries.

Kinds of Injuries

Although back strains were the most common single injury, bruises and contusions to all parts of the body (commonly injuries of less than average severity) constituted the largest general category of injuries—24 percent of the total volume of disabling injuries. The parts of the body affected by all disabling injuries are shown in Chart 1.

Bruises and contusions occurred most frequently in material movement activities but were also common in handtool operations. Generally, these were injuries to feet, legs, toes, or fingers. The average disability for all disabling bruises and contusions was 23 days—766 days each for 9 cases which resulted in permanent-partial disability and 9 days each for 477 such injuries resulting in temporary-total disability.

Strains and sprains, the second largest general category of injuries, included 21 percent of all disabling injuries reported (Chart 2). More than half the strains and sprains occurred in material lifting operations. These were most commonly back (or trunk) injuries.

Fractures constituted a high proportion of the total injury volume—19 percent. Their numerical importance, however, was overshadowed by their characteristically high severity. In the aggregate, 38 percent of all disability days reported were attributed to fractures, more than double the proportion contributed by any other class of injury. Five of the 375 reported fractures were skull fractures and 4 were fractures of the back. Toe fractures led the list, 110, followed by 79 foot fractures, and 72 finger fractures.

Nearly 45 percent of the fractures occurred in material handling activities, but machine and handtool operations also produced considerable numbers of these injuries.

Eye injuries produced by flying particles were common—9 percent of all the disabling injuries reported. None of the eye-irritation cases resulted in permanent impairment, but the resulting time loss averaged 4 days per case. These injuries occurred primarily in machine and handtool operations.

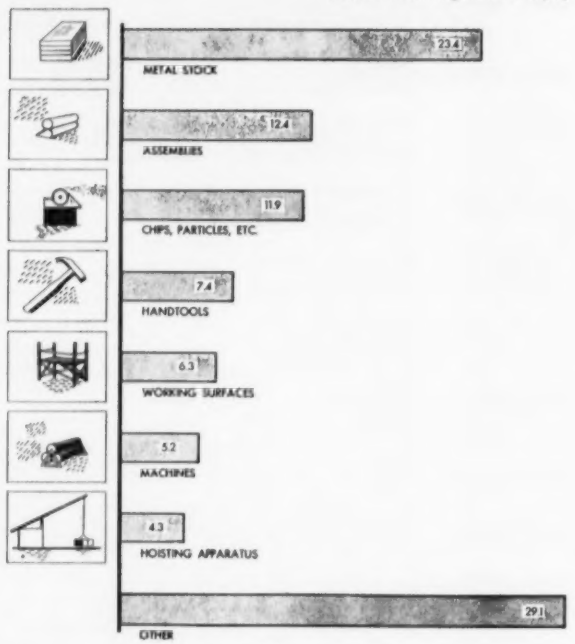
Slightly over 14 percent of the disabling injuries were **cuts, lacerations, or punctures.** These tended to be fairly severe injuries—11 of the 289 resulted in permanent impairments and the time loss for the remainder of the group averaged 12 days per case. Nearly half of these were hand or finger injuries and approximately one-fourth were leg and foot injuries. Most of the remainder were head injuries.

This general pattern of injuries prevailed throughout the industry. No significant differences in the injury distribution were found when the reporting plants were classified on a product basis—i.e., by heavy tank plants, boiler plants, and those manufacturing miscellaneous boilershop products. Similarly, plant-size groupings produced no significantly different patterns.

Chart 3. MAJOR SOURCES OF INJURY

In the Boilershop-Products Industry

Percent of All Agencies of Injury



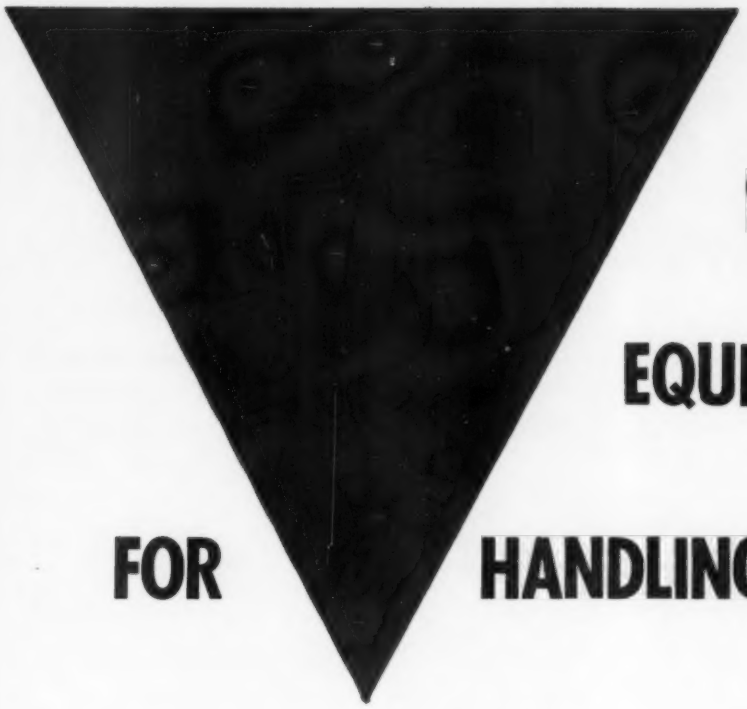
UNITED STATES DEPARTMENT OF LABOR

What Objects Cause Injuries?

The objects and substances which directly inflicted the recorded injuries were many and varied. Several general categories, however, have particular significance as indicators of the most common sources of injury. In some instances, these objects and substances became injury producers because of their own inherently hazardous characteristics; in other cases, they inflicted injuries only because they were improperly used or because of their position at the time of the accident.

Metal stock, assemblies, and chips or flying particles were the most common sources of injury. In the raw materials category, metal stock items alone inflicted 23 percent of the reported injuries. Some 12 percent of the injuries were produced by contact with assemblies and another 12 percent were inflicted by chips or flying particles (See Chart 3).

(Continued on page 29)



SAFETY EQUIPMENT FOR HANDLING ... Acetylene

The correct usage of personal protective equipment for acetylene requires the education of the worker in the proper employment of the equipment available to him. Under conditions which are sufficiently hazardous to require personal protective equipment, its use should be supervised and the type of protective equipment selected should be capable of control over any potential hazard.

Leather gloves should be worn by employees handling acetylene cylinders. Leather gloves with gauntlets are recommended for those occupied with welding or cutting. In addition, trouser cuffs or shirt pockets that catch sparks should not be used. Woolen clothing is preferred. For heavy welding or cutting, leather vests and welding sleeves are recommended together with fiber frame instead of metal frame spectacles. Metal belt buckles and metal buttons that can cause burns should be avoided.

Respiratory Protection

Acetylene is classified as a simple asphyxiant and in controlling its concentration in air, the lower explosive limit is the main factor to be considered. However, severe exposure to acetylene may occur in case of failure of equipment, and respiratory protection should be provided to safeguard employees in situations where there may be oxygen deficiency or toxic contamination from some other product in the area.

Employees who may be subject to such exposure should be provided with respiratory protective equipment as described below. Note: Respiratory protective equipment must be carefully maintained, inspected, cleaned and sterilized at regular intervals, and always before use by another person.

(a) **Self-contained Breathing Apparatus** which permits the wearer to carry a supply of oxygen or air compressed in the cylinder, and the self-generating type which produces oxygen chemically, allow for greater mobility. The length of time a self-contained breathing apparatus provides protection varies according to the amount of air or oxygen supply carried. Cylinder (compressed) oxygen should not be used in tanks or confined spaces of small capacity.

(b) **Positive Pressure Hose Masks** supplied by externally lubricated blowers. Since these masks depend on a remote air supply,

(Continued on page 58)

The above material is from "Chemical Safety Data Sheet for Acetylene," published by the Manufacturing Chemists' Association, Inc. The full data sheet, in addition to information on personal protective equipment and fire fighting, covers the properties of acetylene, hazards, engineering control of hazards, employee safety, handling and storage, tank and equipment cleaning and repairs, medical management, and first aid.

Copies of the complete data sheet (SD-7) are available at 30c from: Manufacturing Chemists' Association, Inc., 1825 Connecticut Ave. N. W., Washington 9, D. C.

The New Maintenance Materials ___ What's in Them for You?

Here the entire house has been covered with clear polyethylene film prior to starting fumigation for termites.

New alloys, plastics and other materials are finding favor for protective coatings, production equipment, piping, glazing, flooring, tarpaulins, and safety equipment.

by **KENNETH N. BANTHIN**
Supervisor
Construction and Maintenance
Food Casings Division
Visking Co., Div
Union Carbide Corp., Chicago, Ill.

Under the impact of World War II, military expansion created demands for the majority of the available supply of known and tried materials of construction. To fill the shortages of material for industry and civilian demands there emerged from our country's research laboratories and pilot plants a whole new series of alloys, plastics, elastomers, and non-metallics.

With the reduction of military procurement and the increased activity of industry to meet the unsatisfied and backlogged consumer market, a large number of new products became available for the Plant Engineer to meet the problems of corrosion, deterioration and equipment maintenance.

As of this date we have a host of new metals, alloys, coatings, plastics, and non-metallics available for the problems of structural protection, corrosion control, equipment maintenance, and process improvement. To mention a representative number of these newer materials I would include:

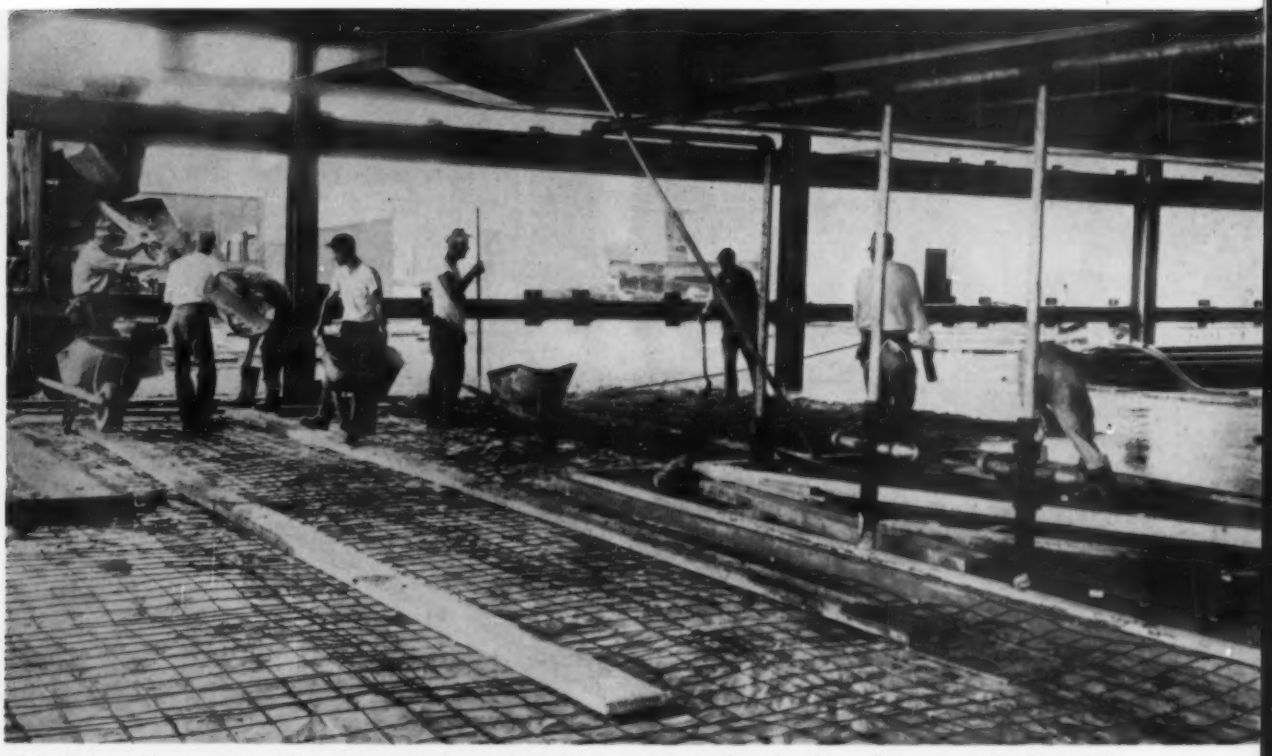
1. The 300 series of stainless steel.
2. The 400 series of stainless steel.
3. Nickel and nickel alloys—a. "Monel" b. #20 alloy—"Durimet" c. "Illium" d. "Hastelloy".
4. Tantalum.
5. Zirconium.
6. Graphite—"Karbate".
7. Tough glass.
8. High silicon irons.
9. Porcelain enamels.
10. Ceramics.
11. Natural rubbers.
12. Elastomers—a. "Neoprene" b. Butyl.
13. The plastic resins—a. Acrylics b. Alkyds c. Bitumens d. Epoxys e. "Nylon" f. Phenolics—"Bakelite"—"Haveg"—Delecto" g. Polyethylene h. Polyesters i. Polyvinyl chloride j. Silicones k. Tetrafluoroethylene—"Kel-F" m. Vinyls n. Vinylidene chloride—"Saran"

How can some of these newer materials be applied to the problems of structural protection, corrosion control, equipment maintenance and process improvement?

Protective Coating for Structures

Coatings are designated as one or more applications of the specific material to secure film of 5 to 20 mils in thickness. It is generally agreed that a satisfactory coating job depends on three factors: **a. Proper surface preparation b. Proper coating selection c. Proper application.** If any one of these three factors is compromised, it

As an effective protection against the elements, these extensive peat piles have been completely covered with an envelope of black polyethylene film.



Polyethylene film is given still another role here where it serves as moisture barrier under a concrete floor slab.

will seriously jeopardize the attainment of a satisfactory job.

A. SURFACE PREPARATION: Most of the studies of surface preparation indicate that grit or sand blasting is the best. Location and surroundings in many cases limit the use of these blasting techniques and all loose scale or previous coatings must be removed by solvents, scraping, chipping or wire brushing.

B. COATING SELECTION: The determining factor for choice of coating should be the severity of exposure. Other factors are color, drying time, method of application and cost. In many plants, because of difficult surface preparation the black and aluminum-filled bitumen coating may continue to be the most satisfactory. The oleo-resinous natural coatings commonly called oil-base paints continue to fulfill their respective functions.

The increased cost of labor for surface preparation and application has justified the expanded use of improved coatings compounded from newer materials:

Acrylic—Coatings made from these resins are water based or latex type paints incorporating an acrylic resin emulsion. Because of their chemical resistance they are recommended for alkaline surfaces such as fresh plaster or concrete. They are firmly established as exterior coatings on concrete, cinder block, asbestos shingle, stucco, and masonry surfaces. Inside, this paint can be used on a wide variety of surfaces.

Alkyds—Coatings made from these resins are usually of the oil modified type and produce a good general-purpose industrial finish. They are most popular as interior finishes because of their fast drying, good gloss and washability. They can be applied to plaster before it is completely dry. They are almost odorless if used with low odor mineral spirits.

BUILDING MAINTENANCE SERIES
other articles in June & July

Chlorinated Rubber—This coating is extremely resistant to most alkalis and acids as well as water. It lends itself particularly well to use in applications involving constant water immersion on wood, metal or masonry surfaces. They are used extensively as floor paints.

Epoxy—Coatings made from these resins fulfill the need for a chemical resistant coating with the properties of a baked enamel and the easy application of regular air dry curing. Because curing is effected by chemical reaction other than oxidation, high film thickness can be applied without impairing the drying operations. Coating exhibits good resistance to weak acid and alkalis combined with good temperature characteristics. Materials are supplied in two parts and a curing agent must be mixed into coating at time of use. Pot life of the mixture is limited to approximately one-half hour.

"Neoprene"—Coatings made from this elastomer are highly resistant to many chemicals and especially to low concentrations of sulphuric acid. They also withstand exposure to caustics, mineral oils, greases, vegetable oils and many solvents. They have wide use as an outside tank coating and for production equipment. Coating performs satisfactorily up to 200°F.

Phenolics—Coatings made from these resins are among the oldest plastics in common use today. The air dried formulations are most generally used for structural coatings. These coatings have generally good acid resistance. Phenolic paints are used for structural steel immersed in fresh water, or exposed to high humidity with continuous condensation as found in humidify-

ing equipment, interior of laundries, water tanks, and bottling plants.

Silicone—Coatings made from these resins are very water repellent and weather resistant. Silicone water repellents are used to seal exterior masonry and to extend its life by minimizing the spalling, cracking and crazing effects of thawing and freezing.

They have protected steel stacks for many months at temperatures of 400°F. to 700°F. where other organic finishes had failed. Silicone begins to decompose at about 550°F. but in doing this, leaves a layer of silica on the surface.

Urethane—This is the newest of the anti-corrosive coatings. It is relatively new in the United States. The coatings have had seven years of extensive field application in Germany. The highest grade coatings offered are found to possess these outstanding qualities: corrosion resistance; chemical, solvent and water resistance; toughness with flexibility; durability to high temperatures; high abrasion and impact resistance; high hardness. Coating can be used on metal, wood, plaster, concrete, asbestos, cement shingles, and plaster board. Finished coating is obtained through a chemical reaction. The resins are supplied in separate containers and mixed on the job. Pot life is about eight hours for both primer and enamel mixes.

Vinyl—Coatings made from these resins may vary substantially in composition in order to adapt them for specific uses. These resins yield coatings which are rugged, flexible, and offer excellent resistance to oxidizing agents. A number of the vinyl coatings are recommended for the hot airless spray application method.

C. APPLICATION: Applications are made by brushing, rolling or spraying. Surfaces should be dry and free of moisture. The newer hot spray application offers important time and cost saving benefits. There is less overspray and thus savings can be made in masking and clean up. Where scaffolding is required, the ability to re-coat within minutes often can reduce application cost as much as 75 per cent.

Oil-base paints containing vehicles with significant quantities of free oil are applied without removal of all mill, scale or rust. The wetting properties of this oil are used to penetrate and saturate the rusty surfaces.

The principal problem of application is to obtain freedom from pinholes. It is generally agreed the best way to assure good coverage of edges, corners and pits is to apply not less than three coats (two for hot spray methods) to secure an optimum film thickness of 5 to 7 mils.

For the application of water-base **Acrylic Coatings,** the surfaces must wet readily with water if good adhesion is to be obtained.

On the other hand, water in any form is detrimental to the application and curing of urethane coatings. The surface to be coated must be free of condensation.

The **Epoxy Coating** must be applied immediately after sand or grit blasting. One or two coats of primer and up to three coats of finish can be applied in multiple coats in a period of eight hours. To assure complete coverage, it is advisable to tint each coat a different color.

Protective Coatings, Lining, and Fabrication for Production Equipment

The high cost of down time and lost production in the continuous process industries has resulted in the application of protective coatings and linings to the ferrous metals of construction and fabrications made entirely from resistant materials.

Multiple application of materials are generally considered as coatings whereas one application of a sheet or film of 50 mils or greater is regarded as a lining. As the majority of production equipment is relatively small in comparison to structure, the use of baked or heat cured materials is advantageous and economical.

Phenolics—The baked phenolic coatings are among the oldest materials in common use today. They have good acid resistance. Baked phenolics can be used up to 350°F. except where oxidizing agents are present. Tanks lined with baked phenolics can be steam cleaned. Baked phenolics are commonly used for coating of zeolite water softening tanks, ventilating fans, coils, and fume exhaust ducts. For special process use, phenolic resins in combination with asbestos fibre or graphite ("Haveg") are heat molded into self-supporting vessels, ducts and pipe.

Elastomers—Continued progress has been made in the development and application of natural and synthetic rubber (elastomers) lining material for weak sulphuric acid, aqueous hydrochloric acid, and other chemical solutions corrosive to ferrous metals. Rubber linings also are abrasive resistant and in this field possess an advantage over many of the other linings. The upper temperature limitations for rubber linings is in the 160°–225°F. range, depending on the rubber compound and material exposure. The natural and synthetic rubber (elastomers) are frequently used for lining of reaction tanks, evaporators, exhaust fans, hoods and ducts.

Glass—Glass bonded to steel as a protective barrier has proved resistance to the majority of acids and organics and has been used extensively in the fine chemical, cosmetic, and pharmaceutical industries. Of more recent development is the use of glass coated steel smokestacks. The glass coated steel stack is reported to have superior corrosion resistance regardless of excessive condensation or intermittent operation.

Polyvinyl Chloride—P.V.C.—From the vinyl group of resins the plastic material polyvinyl chloride (P.V.C.) has made a name for itself both as a coating lining and structural material where corrosion resistance is important. Unplasticized P.V.C. rigid sheet commences to distort by heat at about 165°F. The material does not support combustion and this fact coupled with its corrosion resistance has led to its widespread use as a coating for fans, plenum chambers, hood, and exhaust ducts. Solid P.V.C. sheets are readily fabricated somewhat the same as sheet metal to form ducts, distributor plates, hoods, reactor chambers, and tanks.

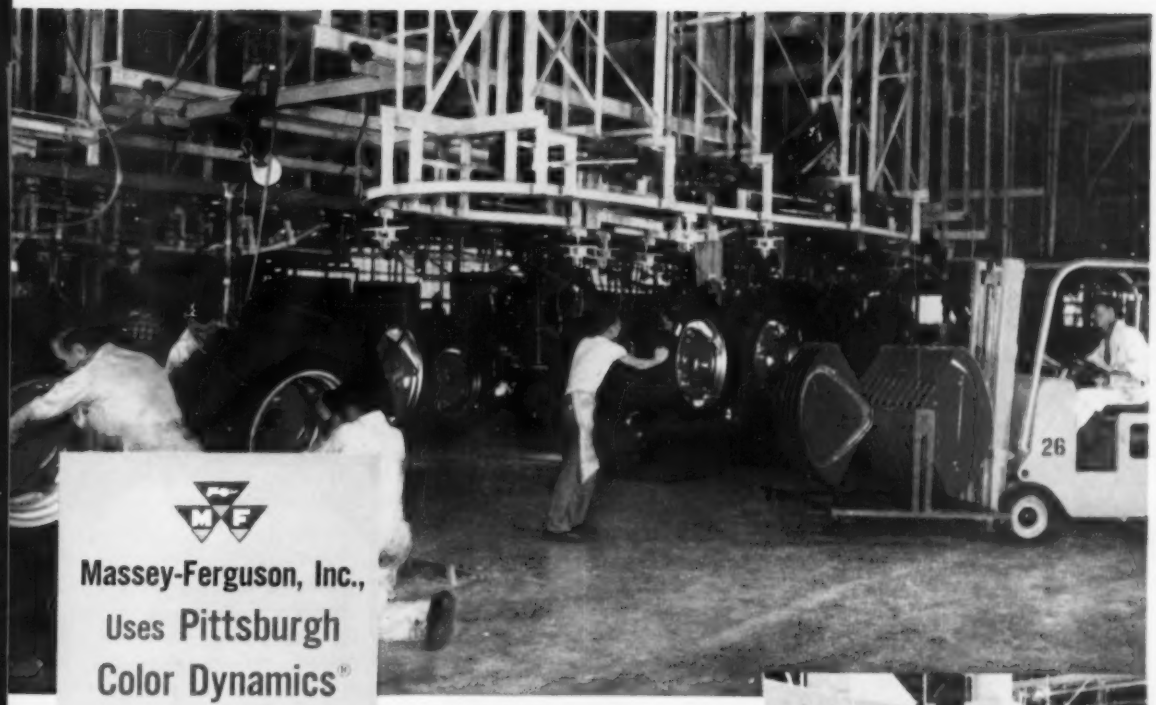
Of recent innovation and availability is 90° and "H" joining strips

(Continued on page 20)

For a copy of booklet described on opposite page, use Key # E-6 on card on page

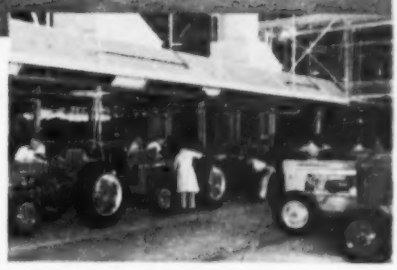
Polyesters—Polyester resins rein-

low carbon). The chromium-nickel



Massey-Ferguson, Inc., Uses Pittsburgh Color Dynamics®

to improve productive efficiency, and safety in huge Detroit tractor assembly plant



Another leading example of the way Pittsburgh COLOR DYNAMICS improves productivity and welfare of workers is the enlarged Detroit plant of Massey-Ferguson, Inc., world-famous builder of tractors and combines.

● **This modern system** of painting was included in the $3,500,000 expansion program which tripled capacity and made this one of the world's largest tractor assembly plants. All Massey-Ferguson tractor engineering and assembly operations for North America are now concentrated here.

● **Interior** of the enlarged and modernized Detroit assembly plant was painted according to COLOR DYNAMICS principles. Colors for walls and ceilings were selected to raise the light level of all work areas. Overhead distractions were subdued. Safety colors were used on operating controls, mobile equipment and traffic lanes.

● **Massey-Ferguson's satisfaction** with the results of COLOR DYNAMICS is expressed by J. L. Gilliam, General Factory Manager of the Detroit assembly plant. "Our experience," he states, "convinces us there are dollars-and-cents advantages in this purposeful use of color. It has materially improved the productive efficiency and safety of our workers.

● **"Moreover,** improvement in the general appearance of our plant has enhanced morale. Being proud of their cheerful surroundings, our employees strive to keep them clean. This simplifies housekeeping. And we enjoy these benefits of COLOR DYNAMICS without paying more than we would for conventional maintenance painting."

● **Why not see** what COLOR DYNAMICS can do in your plant? Try it on a machine or two, or in a whole department and see the difference in efficiency, morale and safety.

You Can Have a Color Program for Your Plant—FREE

● Send for our comprehensive fully illustrated book which explains simply and clearly the principles of COLOR DYNAMICS and how to use them effectively. It's FREE. Better still, we'll prepare a detailed color program for your plant, or any part of it, without cost or obligation. Just call your nearest Pittsburgh Plate Glass Company branch and arrange to have a representative see you. Or mail coupon at right.

Featured on the Garry Moore Show—CBS-TV Tuesday evenings.

Send for a Copy of this FREE Book

Pittsburgh Plate Glass Co., Paint Div.,
Department SM-59, Pittsburgh 22, Pa.

☐ Please send me a FREE copy of your booklet "COLOR DYNAMICS."

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IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

"Durimet 20" alloy can be classi...

NOW—ROOF MAINTENANCE

New Materials

(from page 18)

to permit rapid fabrication of sheet P.V.C. into ducts, tanks, etc.

Tetrafluoroethylene ("Teflon")—The tetrafluoroethylene resins ("Teflon") have a combination of excellent electrical, chemical, and thermal properties. Fabricated sections of these resins are tough, flexible in thin sections and fairly rigid in massive pieces. The resins maintain these useful mechanical properties at temperatures in the range of minus 450°F. up to 500°F. Surfaces of these resins manifest an extremely low co-efficient of friction and almost nothing sticks to them. By means of special treatment these surfaces can be made to accept conventional industrial adhesives.

Aqueous dispersions of "Teflon" are applied as a coating or impregnated into a variety of porous structures by conventional spray methods or dipping.

In connection with production equipment, "Teflon" is also used as a material for gaskets, packing, mechanical seals, heat sealing platens, pump impellers, valve seats, bearings, and coatings for tapes, candy trays, and baking pans.

Trifluorochloroethylene ("Kel-F")—The trifluorochloroethylene resins make "Kel-F" plastic an extremely versatile material with a unique balance of chemical, mechanical, and electrical properties. These resins exhibit satisfactory properties over a wide range of temperature —minus 320°F. to 390°F.

There are no solvents available for "Kel-F" plastic at ordinary working temperatures. Consequently dispersions are used. Application is made by the spray or dip methods upon a properly cleaned and abrasive blasted surface. Films of this plastic are applied in 2 to 5 mils per coat. A minimum thickness of 10 mils built up in 5 coats is recommended for highly corrosive environments.

"Kel-F" is also applied as a plastic laminate in tanks, vessels, containers, and pipe. Application is by means of various cements. In connection with production equipment "Kel-F" is also used in the molded form for valve seats, pump packing, diaphrams, seals, and others.

Polyesters—Polyester resins reinforced with fiber glass provide an all-around versatile material. Linings and coverings of this material are made by impregnating multiple layers of fiber glass with resins and bonding under heat and pressure. This produces a thermo setting plastic lining with good impact strength and temperature applications up to 225°F.

The polyester resins in combination with fiber glass are also used in emergency and permanent repairs of pipe line and process equipment. Multiple layers of glass cloth are applied with a self-curing polyester-activated resin binder.

"Time we cleaned up that oil slick, I'm thinkin' . . ."

Stainless Steel—The development of stainless steels and their use for construction and maintenance has been so rapid during the past twenty years that many users adapt them without a clear understanding of their major characteristics. The outstanding characteristic of stainless steels is their ability to readily reform an oxide film which acts as a constant buffer against further corrosion of the underlying metal.

The basic alloying element of stainless steel is chromium and its presence in amounts exceeding 11% assures formation of protective surface films. The common chrome steels—type #410 (12% chrome) and #430 (17% chrome) are resistant to corrosion by the atmosphere, fresh water, mild acids, most alkalis and a number of food products.

Nickel additions profoundly increase the resistance of the protective film. The most common chromium-nickel steels are #302 (18% chromium and 8% nickel) and #304 (18% chromium and 8% nickel with low carbon). The chromium-nickel steels are used extensively in laboratory equipment, dye tanks, washers, refrigerators, and food industries. The low carbon content of type #304 facilitates welding.

Molybdenum is added to the chrome-nickel stainless steels to increase strength, toughness, and corrosive resistance. The common chrome-nickel-molybdenum stainless is type #316 (18% chromium—12% nickel—2% molybdenum).

Columbium and titanium are used principally to control intergranular corrosion and the formation of grain boundary carbides. The most common of these stainless steels are types #347 and #321.

Stainless steels are used throughout plants where nitric acid is manufactured. On the other hand where corrosive conditions involve highly ionized reducing acids, such as hydrochloric, the stainless steels will be attacked and are not recommended. Between these two extremes are a number of borderline cases where some slight change in the corrosive condition, such as temperature, concentration, extent of oxidation, or other factors may mean the difference between complete resistance and failure.

Tantalum—The metal tantalum is produced by the powder metallurgical methods. It is strongly resistant to most corrosives and is mainly used for coils, coolers, and containers of heat transfer equipment. Of recent completion was the largest tantalum lined reactor. The 30-gallon inner chamber is lined with sheet tantalum cut and welded into place by the Heliarc method.

Nickel and Nickel Alloys—("Monel", "Durimet 20", "Illium", "Hastelloy"). Nickel and its alloys form a broad group of modern metals extremely resistant to specific conditions of corrosion in the chemical, petro-chemical, synthetic fiber, and plastic industries. The majority of these materials can be obtained in both the cast and wrought forms.

"Monel" is more resistant to acid corrosion than either of its constituents, namely nickel and copper. It is especially resistant to sulphuric, hydrofluoric, phosphoric acid, fruit juices, and other acids. In weak sulphuric acid (5% to 15%) exposure, "Monel" is one of the most useful strong malleable materials.

"Durimet 20" alloy can be classified as a nickel alloy or a high-alloyed stainless steel. It has a nominal composition of 29% nickel, 20% chromium, 45% iron plus others. This material is usually used in the cast form for pumps, impellers, valves, rotometers, and jets. Some sizes of tubing are available.

"Illium" is a nickel, chromium, copper, molybdenum alloy with high resistance to corrosion and wear combined with great strength at high temperature, and excellent workability. The alloy designated as Illium "G" is the most well known of this group. Illium "G" is a cast alloy. It answers the need for strong corrosion-resistant equipment in the sulphuric acid spin bath of the rayon plants; extrusion dies for cellophane; and fluid handling equipment for sulphite paper, petroleum alkylation, carbonated beverages, and general chemical plants. Illium "G" can be machined and welded.

"Hastelloy" nickel base alloys will withstand certain conditions of chemical corrosion more adequately than other materials commonly available for use in the chemical and other process industries. The "Hastelloys" designated as "B", "C" and "D" are the most well known to its users in the chemical, petroleum, paper, pump and pharmaceutical industries for use as agitators, autoclaves, coils, condensors, fans, filters, heat exchangers, mixers, pumps, tanks, and valves. Alloy "B" is well suited for equipment handling hydrochloric acid at all concentrations and temperatures. Alloy "C" is one of the most universally corrosive resistant alloys available. Alloy "D" is best known for its exceptional resistance to sulphuric acid of all concentrations and temperatures. The alloys can be machined and welded.

"Nylon"—This material has become increasingly important in industrial applications. "Nylon" rod, strip and tubing are not only machined into parts to replace metals but also are opening up new fields of usage. Probably the largest industrial application of "nylon" is in the form of bearing surfaces for all types of production equipment. "Nylon" scraper blades running in contact with metal rolls are replac-

(Continued on page 59)

HOW POOR MAINTENANCE RUINS — linoleum

Battleship linoleum, usually recognized for its ability to stand abuse and wear, can actually be "burned" up. Here is a picture showing what can happen to linoleum with the continued use of alkaline cleaners.

Linoleum is made from oxidized linseed oil or combinations of drying oils, wood flour and/or ground cork, resins and pigments. Here the alkaline cleaner has caused the emulsion of the linseed oil in the linoleum. Caustics used in cleaning have the same result as using actual harsh soaps. By mixing these caustics with the oil present in the linoleum, you change the chemical properties of the cleaner and are actually making soap.

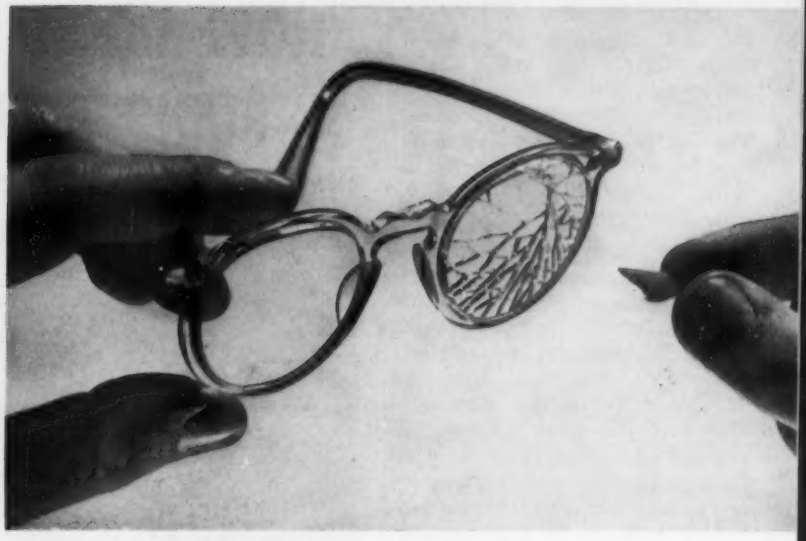
Note how the cleaning solution has also eaten the varnish on the door and baseboard. The same reaction is taking place on the varnished surfaces as occurred on the linoleum. The varnish, too, is composed of oils which are emulsified by a harsh, reacting cleaner. Thus the protective varnish finish is being eaten away and the wood itself is being attacked.

Manufacturers of linoleum flooring material recommend: Use only mild or neutral cleaners. Highly alkaline materials will deteriorate the linoleum causing brittleness and in some cases result in color fading, whitening or disintegration.

Here again, if safe neutral cleaners had been employed and if a good grade of water emulsion wax had been applied to furnish a "hold out" against daily wear, this battleship linoleum could have lasted its life expectancy and could have provided its owner with a lower maintenance cost.

The June issue of "Safety Maintenance" will contain an article on "How Poor Maintenance Ruins Terrazzo."

Material by courtesy of Hillyard Chemical Co.



A machinist in Eastman Kodak's Apparatus & Optical Division was using a large milling cutter on a routine operation. Suddenly the left lens of his safety glasses shattered. A portion of one of the large, spiral flutes had broken off the cutter and struck the lens. The operator had nothing more than an interesting souvenir of what might have been a serious eye injury. The plant's safety department estimates that the average pair of safety lenses will stand seven times the impact of ordinary glass lenses.

Tomorrow's Eyes Saved

EYE PROTECTION SERIES
other articles April & June

Everyday we are made more and more aware of the miracles which modern medicine has developed to give new hope to people afflicted by crippling diseases and accidents. Man can walk almost normally with artificial legs; he can write and even use complex machinery with artificial hands. **But to date, no one has ever been able to see with an artificial eye.**

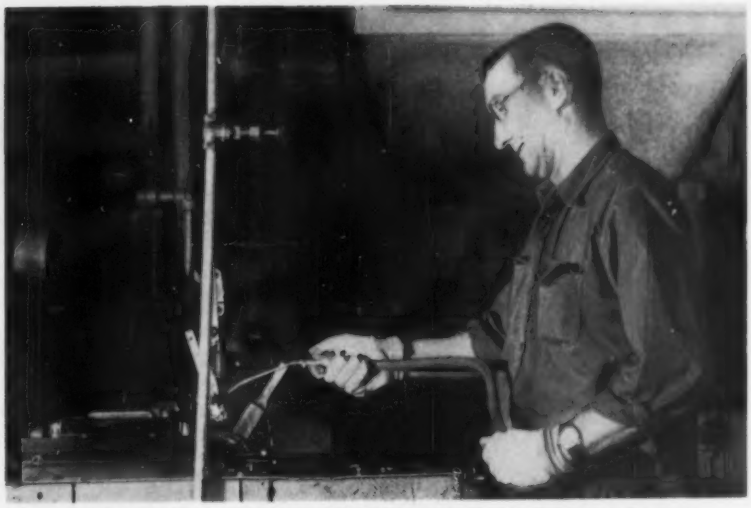
Vision is man's most precious sense. Since no man-made miracle has been developed as a substitute, emphasis must be placed on adequate eye protection and safety programs which help workers to safeguard the only pair of eyes they will ever own.

Eye injuries and the resulting tragic loss of sight can happen anywhere—at home, on the street—under the most normal circumstances. But the greatest number occur during working hours in the thousands of factories, metal shops, etc., throughout the United States. According to the National Society for the Prevention of Blindness, each year more than 12,000 workers have some permanent disabling eye accidents.

Safety programs are assuming a major role in the expanding industrialization of the United States. With the growth of safety and research councils, management is very quickly shown that the cost of an adequate eye safety program rapidly pays for itself by eliminating costly injuries and insurance claims. In ap-

LEFT: Here a toolmaker, wearing safety goggles as protection against flying chips, repairs a die in the plastic molding department of Stromberg-Carlson Div., General Dynamics Corp. Employees can't miss eye safety warning.

Wood chips, splinters, and flying nails are eye hazards in the Receiving Dept. of Taylor Instrument Companies. Thomas McDonough wears eye protection when he is opening shipping cases.



Using an air gun in the plastic molding department of Stromberg-Carlson Div., General Dynamics, safety glasses protect eyes from flying chips.

Today

proximately 10 years, plants with eye programs have saved the vision of 14,000 men and women, and more than $60 million in compensation costs.

According to the American Optometric Association, industrial eye injuries fall into three major categories. Those caused by flying particles, noxious fumes and harmful radiation.

Since different operations call for individual types of protection, several major kinds of safety eyewear have been developed. In some cases, the eyewear looks exactly like regular glasses. Lenses have been specially heat-treated to withstand the impact of flying particles. Frames may be either metal or plastic—the latter made of an acetate material which will not ignite should the worker be near flames or sparks. The most modern frames of this type are designed to accommodate side shields to give the eyes full side protection against hazards from nearby operations.

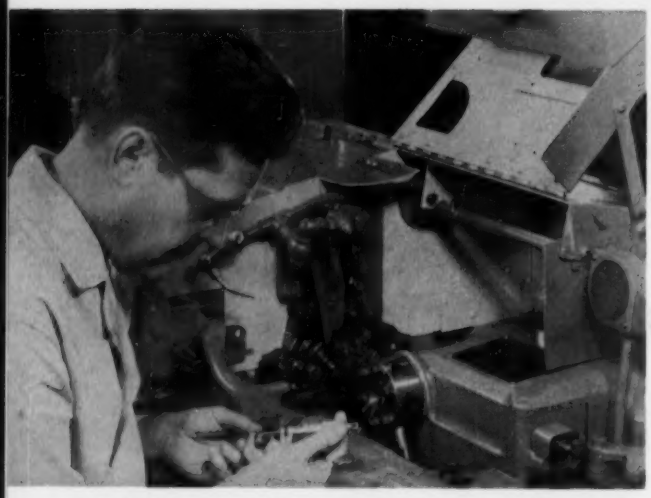
Other jobs require plastic eye shields which have been molded from tough plastic and are designed to withstand maximum usage. These are usually lightweight and can be worn over regular or protective eyewear to prevent pitting or scratching of lenses. When severe industrial hazards demand the greatest eye protection, cup-type and cover-all safety goggles are used. These are molded from tough thermo-setting materials and fit snugly and comfortably against the average orbital cavity, allowing no particles or sparks to penetrate. They are unaffected by moisture, sterilization, steam or acid. Shallow cup designs provide a wide

(Continued on next page)

RIGHT: Chemist Burton Griswold is adding a precise amount of chemical reagent preparatory to testing a Kodacolor processing solution. Safety glasses are required for everyone employed in Eastman Kodak's chemical laboratories.

SAFE EYES IN MACHINE OPERATIONS

Turret drill operator, wearing safety goggles to protect his eyes from flying chips, drills members of frames for "XY" dial telephone switchboards in Stromberg-Carlson's main plant.



Operator measures with a micrometer the outside diameter of a lens separator for a Kodak movie camera. All the members of the automatic screw machine department wear safety glasses. Even though most machines have safety guards, the thousands of turning operations a day lead occasionally to a flying bit of metal which could injure eyes.

Fred Allen looks at the fast spinning tools of his turret lathe with confidence because his eyes are protected against chips and coolant. Safety glasses are requird for all operators and supervisors in machine shops of Taylor Instrument.

angle of vision and will not conduct heat or electricity. This type of goggles is often worn by arc welders over regular eyewear.

Regardless of the type of frame, safety eyewear lenses are made of the finest optical glass specially heat-treated to prevent breakage under high impact. Care is given to see that the lenses contain no striae, bubbles, milkiness, strain or surface defects. They must have an exact degree of hardness, durability, color, and color stability.

In operations which call for critical work, or when the individual normally wears prescription eyewear, the lenses are ground to prescription so that maximum vision as well as protection is maintained. If the operator works near intense glare from molten materials or under conditions of infrared or ultra-violet light, the safety lenses are tinted or coated with a metallic covering to provide complete glare protection.

The accompanying photographs show a number of industrial applications where the operator is wearing protective eyewear, with the type of frame and lens needed for his specific job.

Pictures through the courtesy of Bausch & Lomb Optical Co., and the companies mentioned.

LEFT: With eyes protected by safety glasses, an operator in the Camera Works plant of Kodak's Apparatus & Optical Div. guides a carbide tool bit on an optical lathe as it shaves a shutter part for a new Kodak camera. The part itself, clamped in the chuck at right, whirls at 3600 rpm. Safety eyewear protects all department personnel from flying chips. A rarer, but more dangerous, hazard is the breaking of a tool bit as it cuts. In the six years of the plant's expanded eye safety program, there have been seven instances of a broken bit shattering a safety glass lens, but without harming the wearer's eyes. During that period, eye injuries in the plant have been reduced 82 percent.

EYES SAFE FROM RADIATION HAZARDS

Edna Bater of Taylor Instrument is forming thermometer bulbs with high oxygen content flame. Her safety glasses have didmymium lenses to filter out the harmful ultra-violet rays.

In the metal shop of the Stromberg-Carlson Division of General Dynamics Corp. where racks for military electronic equipment are made, the welders who work in teams wear welding helmets for eye and face protection. Also, underneath the helmets, they wear special safety welding goggles with dark lenses as additional protection against possible flash while helmet is lifted, as shown.

SAFE EYES IN MAINTENANCE

Safety goggles are required for such jobs as this, in the Stromberg-Carlson maintenance shop, where a steam-fitter is threading a pipe. The goggles, with hardened lenses, protect his eyes against possible injury by flying chips or tool breakage.

Frank Boursey makes an adjustment to the drive mechanism of the highspeed, precision Kodacolor Printer in the Color Print & Processing Organization at Kodak Park Works. Mechanics in machinery maintenance operations are required to wear safety glasses, which are provided by the company.

In the engine room of Eastman Kodak's Apparatus & Optical Div. plant three service men make adjustments on one of the four air compressors used in the plant in connection with the operation of a wide variety of machines, including punch presses, automatic screw machines, secondary machine equipment and assembly machines, as well as many others. Safety glasses are worn in the area because of the danger of flying particles and use of heavy wrenches and tools.

Keep Your in the CIRCLE

—An Off-the-Job Traffic

ONCE again this May and June the National Vehicle Safety-Check will take place in the 34 states that do not require periodic motor vehicle inspection by law.

Last year, in over 2,000 communities, more than 3 million vehicles were safety-checked on a free and voluntary basis. Such a response shows that this traffice safety activity creates widespread and favorable public reaction. ONE out of every FIVE vehicles checked was found to be in need of immediate service attention to correct an unsafe condition.

Employee Vehicle Safety-Checks offer an opportunity to help reduce "off-the-job" traffic accidents. This action program for all citizens also encourages employee participation in community traffic accident prevention activities. Active participation gives each individual driver an opportunity to have his vehicle Safety-Checked at community or employee check lanes; and, thus, it is a public relations program for employees as well as the community and citizens served by your industry.

Here's what participation can provide for you and your community!

- ***An aroused public and employee awareness of the need to keep vehicles in safe driving condition, and an encouragement to safe driving.***
- ***An aid in reducing "off-the-job" traffic accidents of employees.***
- ***An opportunity for employees to have their vehicles Safety-Checked on a free and voluntary basis.***
- ***A supplement to community Vehicle Safety-Check programs.***
- ***An opportunity to provide citizens vehicle Safety-Checks at employee check lanes in areas where community Safety-Check programs are not conducted.***

HOW TO PLAN AND CONDUCT AN EMPLOYEE VEHICLE SAFETY CHECK

Obtain a kit of planning materials from National Vehicle Safety-Check Headquarters, 1200 18th St., N. W., Washington 6, D. C. Then, check on community plans to conduct a community-sponsored Vehicle Safety-Check.

If A Community Vehicle Safety-Check is Planned:

1. Advise the local Safety-Check committee and public officials (mayor, and police chief) of your company's interest. Offer to cooperate and help in the community program.
2. Volunteer representation from your company on community planning committees.
3. Offer assistance in manning and operating Safety-Check lanes.
4. Discuss plans for a Vehicle Safety-Check for employees in conjunction with community Safety-Checks.
5. Publicize the community's program, as well as that for employees, in employee bulletins, newspapers, on bulletin boards, and by distribution of handbills to employees.

Employees OF SAFETY

Safety Action Program

6. Urge your employees to cooperate in the Vehicle Safety-Check by having their vehicles Safety-Checked at community or employee check lanes.
7. Join with other community organizations in support of cooperative advertising . . . display program materials.
8. Help your community obtain materials required for their check lane and display purposes.
9. Alert all automobile, tire, and petroleum outlets regarding plans for employee Vehicle Safety-Checks.

If Your Community's Plans Are Indefinite:

1. Encourage the holding of a community Vehicle Safety-Check program. (Refer to the "Planning Guide for Community Vehicle Safety-Check Programs" for details.)
2. Offer assistance to local committees to get a program started.
3. Proceed with plans for a Vehicle Safety-Check for employees. If a community-wide program is started at a later date, a company program for your employees will supplement their efforts.

If Your Community Has Decided NOT to Conduct a Program:

Proceed with plans for your Vehicle Safety-Check for all employees.

AN EFFECTIVE EMPLOYEE VEHICLE SAFETY CHECK WILL NEED

Steering Committee

Set up a Safety-Check steering committee of company employees. Hold a meeting to discuss plans, outline activities, assign responsibilities and select a program chairman. (Check the "Planning Guide.")

Members of this committee might include representatives of top management; your safety director; plant police; public relations personnel; department heads; union representatives, and employee spokesmen.

An organization meeting should be held well in advance of planned program dates to allow adequate time for preparations. An activity schedule will help identify planned activities, specific preparations required, deadline dates, and persons responsible for completion of all details.

Program Chairman

The Program Chairman might be the Safety Director, Chief of Plant Protection or Security Police; or other qualified company representative. The Chairman should have a thorough understanding of Safety-Check objectives and requirements. The following sub-committees are suggested to help him carry out essential phases of the program and preparations for Safety-Check activities:

Check Lane Committee: (See manual on "How to Operate Community Vehicle Safety-Check Lanes.")

- This committee recruits manpower; establishes check lane locations, and supervises their operations.
- Briefs all check lane crews in advance so checkers will give accurate and complete Safety-Checks. (Use mechanics from company garages or other qualified personnel.)
- Makes sure check lanes are set up and check lane materials such as: check lists, windshield stickers and safety literature are available in adequate quantity at each check lane during the period of the Safety-Check.
- Keeps an accurate record of the Safety-Check activity and provides the Chairman with daily

(Continued on the next page)

and final results of all Safety-Checks.

- Alerts local automobile, petroleum, and tire outlets so they will be prepared to cooperate in the correction of vehicles found in need of maintenance attention for safe driving.

Public Relations Committee: (See pages 6, 7, 10, and 11 of "Planning Guide," and the folder, "Press, Radio-TV suggestions.")

- This committee should make sure the Safety-Check story is told by every available means . . . in advance, during, and after the project.
- Obtain cooperation of public officials, police, local auto and tire dealers, service stations, and independent garages, and safety organizations.
- Provide information to press, radio and TV to obtain public and employee support.
- Be responsible for all local publicity . . . promotion of special events . . . displays throughout the plant.
- Record program events, check lane activity, and obtain photographs, news clippings, etc., for a summary report.

Employee Committee:

- The Employee Committee confers with department heads, supervisors, unions and employees regarding times best suited for the Safety-Checking of employee vehicles.
- Assures that all arrangements will be mutually convenient to the company and its employees.

Program Materials

Various promotional and check lane materials will be needed to conduct an effective Safety-Check. Prior to the start of the Safety-Check, arrangements must be made to order, make payment, and deliver the materials to the check lanes and for use by the Public Relations Committee. These committees, in turn, handle arrangements for display and posting, or delivery of materials to the check lanes.

Planning materials that can be obtained from the National Headquarters include: "Planning Guide for Community Vehicle Safety-Check Programs" . . . the organizational manual for a community-wide program; "How to Operate Community Vehicle Safety-Check Lanes" . . . outlining procedures to follow in making and recording the 10-point safety-checks of front lights, rear-view mirror, steering, glass, rear lights, brakes, exhaust system, horn, windshield wipers, and tires; Publicity Kit, including fill-in press releases, suggested radio and TV spot announcements and a sample Mayor's proclamation; and other brochures and descriptive materials.

. . . Report Results!

Data on vehicle condition is valuable information for use by public officials, safety organizations, and your industry! Make the results of your program available to appropriate officials of your company. If your program was conducted in cooperation with a community Safety-Check, send a summary of Safety-Check results to the General Chairman of the community program. He will include this information with the community report submitted to National Vehicle Safety-Check headquarters, Washington, D. C.

If your program was conducted as an employee Vehicle Safety-Check . . . send a copy of the Summary Report of results to National Vehicle Safety-Check for Communities, 1200 Eighteenth Street, N. W., Washington 6, D. C., by July 1st. This information will be included in the nationwide summary of Vehicle Safety-Checks.

Send a complete documentary report on your Vehicle Safety-Check for Employees . . . including visual evidence of all phases of your planning and program activity . . . to National Vehicle Safety-Check for Communities. This will enable further development of suitable information and materials.

Continue Your Employee Vehicle Safety-Check Program:

Include regular follow-up reminders of the need to keep vehicles in safe driving condition in your employee bulletins, pay-check envelopes, and discuss at plant meetings and assemblies.

Urge employees with vehicles requiring safety service of one or more items to have these conditions corrected . . . if not already taken care of during the program.

Encourage employees to maintain their vehicles in safe driving condition through periodic Safety-Checks.

Send follow-up articles, feature stories, radio, and TV spots to local media for the information and safety education of the community.

National Sponsors: Inter-industry highway safety committee and Look Magazine with the cooperation of Association of State and Provincial Safety Coordinators.

For additional information or materials, write: National Vehicle Safety-Check for Communities, 1200 Eighteenth Street, N. W., Washington 6, D. C.

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Dealers to Help Auto Safety Checks

Automobile and tire companies once again are helping states and communities "Join the Circle of Safety" by making available 21 men to serve as special field representatives of the Inter-Industry Highway Safety Committee during the 1959 National Vehicle Safety-Check program, Charles C. Freed, chairman, National Automobile Dealers Association Director, announced.

"In making members of their own staffs available for a three-month period, the automobile and tire companies are assisting those 34 states and their communities which do not require official motor vehicle inspection, to participate in a nationwide effort to help reduce traffic accidents caused by vehicles which are not maintained in safe driving condition," Mr. Freed said.

The Special Representatives of the Inter-Industry Highway Safety Committee, loaned by the automobile and tire companies, attended a three-day training session in Washington, D. C. before their assignments.

Spot Accidents
(from page 14)

Steep plates ranked very high among the injury-producing metal stock items. Angles, pipes, tubes, channels, I-beams, bars, and castings, however, were also substantially represented in the list. Two of the 5 recorded fatalities resulted from injuries inflicted by metal stock.

Bruises and contusions accounted for a high proportion of the injuries produced by contact with metal stock and with assemblies, but nearly half of all the reported fractures were also attributed to these two sources. Most of these two types of injuries were to fingers, feet, toes, or legs. Back strains from lifting metal stock and assemblies were quite common.

The large majority of the injuries inflicted by chips and flying particles—i.e., fragments of metal, sawdust, dirt, sand, dust, etc.—were eye cases. Most of these were relatively minor injuries, but the group included six cases of permanently impaired vision.

More than 7 percent of the injuries were inflicted by handtools—powered tools such as drills, and grinders as well as nonpowered hammers, were prominent in the list. Most of these occurred when the worker struck himself with the tool or dropped it on his foot or toes. The powered-tool injuries were most commonly cuts or lacerations, while those inflicted by hammers were mostly bruises or fractures.

Injuries From Contact With Working Surfaces

Some 6 percent of the injuries resulted from contact with working surfaces—floors, platforms, etc. Most of these contacts originated as falls. Only 3 of the 126 working-surface injuries resulted in permanent impairments, but the remainder tended to be much more severe than most temporary-total disability cases. Their average disability was 23 days per case, compared with a 16-day average for all temporary totals in the study. Nearly a third of the injuries in this group were fractures. Most of the others were strains, sprains, or bruises.

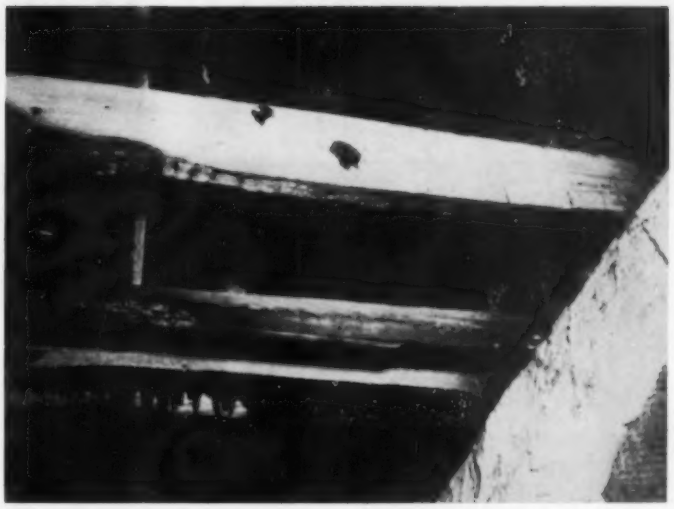
Because of their high average severity, the injuries inflicted by machines and by hoisting apparatus deserve particular attention even though they were not of outstanding importance in terms of numbers. Machine injuries amounted to somewhat over 5 percent of the total, and hoisting-equipment cases came to a little more than 4 percent. The machine injuries, however, included nearly one-fourth of all the recorded permanent impairments; the hoisting equipment cases included 1 of the 5 reported deaths and more than 10 percent of the permanent impairments. The average time lost or charged for machine injuries was 162 days per case compared with 86 days per case for all injuries in the study. The hoisting equipment cases had an average of 226 days per case, which rose to 314 days for those injuries specifically inflicted by cranes.

Other injury sources, each of which produced at least 2 percent of the total number of injuries, included: machine parts; radiations; containers (boxes, drums, etc.); lumber; vehicles; and bodily motions. One of the injuries inflicted by vehicles became a fatality and 1 was a permanent impairment. As a group, the motor vehicle cases amounted to 2 percent of the injury volume, but they produced over 4 percent of the total time lost or charged. The radiation injuries were nearly all cases of welder's flash of relatively low severity. Three of the injuries produced by bodily motions were hernias, the remainder were strains or sprains.

(To be continued in the June issue of "Safety Maintenance")

Charts from Bureau of Labor Statistics, U. S. Dept. of Labor

Another Accident Checked



Fire-Retardant Saves Building

Flames escaping from the top of a gas water heater in the pantry of the Junior High School in Childress, Texas, burned through the ceiling, exposing the structural wood of the attic above to the blaze. Fortunately, far-sighted officials had previously approved a fire-retardant treatment of the building by the application of fire-retardant chemicals to wood surfaces. As a result, although the fire burned for almost an hour before it was discovered, and the intense heat melted the metal utensils in the pantry, the exposed flame-retarded wood in the ceiling (shown in the picture) was only charred and did not burn.

Picture by courtesy of Flamort Chemical Co.

Safety Maintenance SALUTES

A SAFETY IDEA

Tripping Hazards Eliminated

A rail-mounted electrical connector that is convenient, neat and safe simplifies the charging of batteries for electric industrial trucks and makes it easy to connect the lead from the battery. The cables are led from the charger through a sub-floor conduit, then along the underside of the bottom rail of the battery rack, and finally through a hole in the rail to the connector. The connector is screwed to a flange which is welded to the outside of the rail.

This arrangement protects the cable, helps maintain shop neatness, and prevents accidents caused by employees tripping over loose cables. The over-all installation and battery service program were devised by the Caterpiller Tractor Co. for its York, Pa., plant in consultation with Exide Industrial Div., Electrical Storage Battery Co.

'58 Work Injuries

Disabling job injuries among American workers totaled 1,810,000 during 1958—the lowest level since 1939—according to preliminary estimates compiled by the U. S. Department of Labor's Bureau of Labor Statistics. Deaths from work injuries declined to 13,300, the lowest total in the Bureau's 23-year series.

From a high of 2,414,000 in 1943, the volume of work injuries has decreased 25 percent, despite a steady upward trend in the employed labor force. Except for a few minor fluctuations, the ratio of injuries to workers has declined gradually from 45.7 per 1,000 in 1943 to 29.4 in 1958. The 1958 injury total was 4 percent below the revised estimate of 1,890,000 for 1957. Although lower employment and shorter hours of work in 1958 contributed to this decline in injuries, there was also a decrease in the rate of injury occurrence—to the lowest level on record.

In addition to the 13,300 workers killed on the job, 75,700 suffered some permanent physical impairment, ranging from the amputation or partial loss of use of a finger or toe to complete inability to engage in any future gainful employment. The other 1,721,000 injuries each disabled a worker for 1 full day or more after the day of injury, but resulted in no permanent ill-effects.

Approximately 38 million man-days of disability resulted from these injuries during 1958. When the future effects of the deaths and permanent impairments are evaluated and added to the immediate loss, the total attributable to the 1958 injuries will be approximately 160 million man-days—equivalent to a year's full-time employment of about 515,000 workers.

Manufacturing showed the greatest decrease in the volume of injuries, from 392,000 in 1957 to 343,000 in 1958, or about 13 percent. Although this decline was due in large part to lower employment and a shorter work week, there was also a decrease in the frequency of injuries.

Mining recorded the largest percentage decrease in injuries (14 percent), but this was due almost entirely to lower employment and shorter hours. Preliminary reports to the U. S. Bureau of Mines indicated a record low volume of deaths in coal mining.

Injuries to transportation workers decreased 5 percent, somewhat less than did employment. However, in contract construction and trade the volume of injuries declined more than employment.

The only increase in the volume of injuries occurred in the finance, service, government, and miscellaneous group of industries. Part of this rise was due to an employment increase of 5 percent in State and local government, and about 1 percent in finance and service. However, the volume of injuries for these groups increased less than did employment. Both employment and the volume of injuries in the Federal service decreased slightly.

The estimate of disabling work injuries in agriculture reflect a slight increase in employment of hired workers on farms, but a decrease in the number of farm operators and unpaid family workers, as reported by the Department of Agriculture. The overall total of injuries to all farm workers remained the same, at 300,000. Vital statistics figures, however, indicated a decrease of over 5 percent in farm work deaths.

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

MEMBER . . . . . .
Master Superior Court, New Jersey
American Bar Ass'n, New Jersey Bar Ass'n,
Chairman, Committee on Workmen's
Compensation, New Jersey Bar Association
National Federation Insurance Counsel
Past Commander, American Legion, Post 10,
. . . . . Newark, N. J.

EMPLOYEE OR INDEPENDENT CONTRACTOR?

The claimant was regularly employed as a stock handler; however on occasion he cut trees for others. One day, a boating business owner pointed out a tree he wanted trimmed. The claimant worked alone and it was agreed that he was to be paid $3.50 per hour. The employer had the right to discharge the claimant at any time. Since the evidence on the question of whether the claimant was an employee or independent contractor was conflicting, the court upheld the board's award in favor of the claimant. Affirmed.

Eastman vs. Cottman; New York Supeme Court, Appellate Division, Third Judical Department. No. 633. December 30, 1958.

FRACTURED RIB — HYPERTENSIVE HEART DISEASE—Causal Connection?

An employee who sustained a fracture of the right eighth rib on July 15, 1955, which healed properly, was not entitled to compensation for an unrelated heart disease. Several doctors testified that the heart disease was unrelated to the rib injury, which had healed on February 1, 1956. The referee however reduced the award for the period from January 2, 1956 to May 21, 1956 exclusive of the week the claimant was in the hospital for the heart condition. The board affirmed the award finding a causal connection between the rib injury and the heart condition. However, the medical testimony was that of the claimant's own doctors who found there was no causal connection between the two. Therefore the award for partial disability payable from Febraury 1, 1956 until May 21, 1956 should not have been made. Reversed and remitted.

Fiore v. Wilson and Greene Lumber Company; New York Supreme Court, Appellate Division, Third Judicial Department, No. 730. December 30, 1958.

INJURY UNDER WORKMEN'S COMPENSATION—Claimant Employed in Two States

From a judgment of the Division of Workmen's Compensation of the New Jersey Department of Labor and Industry dismissing the petition, the employee appealed. His employer maintained two trucking barns or terminals, one located in New York and the other in Jersey City. The employee, hired in New Jersey, volunteered to go to New York. Once there he shaped up on a daily basis, when he saw fit, and

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was hired and paid on a daily basis, if there was work for him. The employee was not a steady employee in Jersey City or New York. The Hudson County Court, Law Division, Graf, J.C.C., held that each day's hiring of employee constituted a new contract of employment and since employee was hired in New York on date of accident the New Jersey Compensation Act did not apply.

John Sager v. Howell Trucking Co., Inc.; Hudson County Court, Law Division. Decided February 2, 1959

EXPOSURE TO COAL DUST—Anthracosilicosis—Causal Connection

A state compensation board improperly granted death benefits to a widow. The board found that her husband's death was due to exposure to harmful dust for a period of 60 days while employed as a fireman for Hunter College. The board referred the case to three chest specialists who found the disease was due to decedent's work in and about Pennsylvania hard coal mines and that exposure to coal dust in the employment in issue here was not of sufficient duration or severity to contribute to the disabling disease of extensive anthracosilicosis of the lungs. Other physicians also concurred with this opinion. Reversed and claim dismissed.

Gorsky v. City of New York; New York Supreme Court, Appellate Division, Third Judicial Department, No. 682. December 2, 1958.

HEART CONDITION—LUNG CONDITION—Exposure to Dust and Fumes—Pre-Existing Condition

A chef, who was employed by a supper club for six years, was not entitled to receive compensation since he failed to prove that his emphysema and resulting heart condition was an occupational disease. He claimed that while working in a small kitchen he was exposed to dust, cooking fumes and poor ventilation. In January, 1952, he was hospitalized for a lung condition. In May, 1954, he claimed he learned that his condition was an occupational disease in the nature of emphysema of the lungs caused by exposure in his work, and immediately filed a claim for compensation benefits. The Board found he was disabled on October 30, 1954 as a result of emphysema, with pulmonary fibrosis and bronchitis, an occupational disease. The testifying physician said the employee's pulmonary condition was aggravated by his working conditions but he felt the employee had some emphysema prior to his employment. The mere aggravation of a disease not occupational in character is insufficient to establish an occupational disease. Definite proof is necessary to show the disease was contracted in the employment. Reversed.

Smith v. Sports Room Supper Club; New York Supreme Court, Appellate Division, Third Judicial Department, No. 949 December 30, 1958.

INHALATION OF GASES—PRE-EXISTING TUBERCULAR CONDITION—Failure to Prove Causal Connection

An employee's tubercular condition was found not to be connected with his employment of converting appliances for use with natural gas, even though he inhaled quantities of natural and manufactured gases. The employer contended that his condition was the result of an infection, and that there was a gradual deterioration of his physical condition over a period of time. Tuberculosis is known to be caused by tubercular bacilli, and the employee did not have any exposure in his work to such germs beyond that which any individual would normally have in his daily life. It was shown that there was no eventful happening constituting an accident; his condition could not be justly found to be accidental in nature. The aggravation of a condition not occupational in nature is not an occupational disease. Therefore, the compensation board erred allowing compensation. Reversed.

Goldberg v. Conversions and Surveys, Inc.; New York Supreme Court, Appellate Div., Third Judicial Department, No. 848 December 10, 1958.

BRI Reviews Lighting Recommendations

The building industry, architects, engineers, contractors, building products manufacturers and many others associated with it, will take its first close look at the new Illuminating Engineering Society recommended levels of lighting for buildings, and decide what they will mean in terms of cost, noise and heat control, architectural design and electrical system engineering at a Building Research Institute conference at the Statler-Hilton Hotel in Cleveland, May 20–21.

Provides Preview

Since the complete report on the studies conducted for I.E.S. at the University of Michigan, which have resulted in the new recommendations, will not be published until June, this meeting will give the building industry an interesting preview of what they may mean to building design and construction, and a chance to predict where they may or may not affect future building practice.

Among the topics are "Trends in Light Source Development and Utilization," both electric and natural light sources. Three talks will be aimed at correlating the recommended levels of illumination with other factors of building design, including their effect on air conditioning and noise control, economic factors such as operating and maintenance costs, and the use of lighting as an element of architectural design.

Panel Discussion

Ample time has been allotted for panel discussion and questions from the audience. Open to the interested public as well as to BRI members and guests, this meeting will also include a demonstration of new illumination levels and design trends to be conducted at the Nela Park laboratories of the General Electric Co. Complete program and registration information may be obtained by writing Harold Horowitz, Building Research Institute, 2101 Constitution Ave., Washington 25, D. C.

A Procter & Gamble research and administration facility has set a world's record for office building safety. The 1800 employees at P&G's Manufacturing Administration and Research buildings in Ivorydale completed more than 13,057,948 consecutive man-hours without a disabling injury. The record began four and a half years ago.

P&G said about 40 percent of the MA&R employees hold jobs not usually associated with an office building operation, such as those in research labs and pilot-scale plant operations.

In addition to the new record, P&G employees hold world safety records in these manufacturing areas: fats and oils, cellulose pulp, soap and glycerine, and shell-loading of explosives.

• • •

Spector Freight System, Inc. has announced that 1958 was the safest year of highway driving in its history. The Chicago based motor carrier's vehicles traveled close to 60 million highway miles, with only one accident for every 139,600 miles of highway covered by the company's 836 over-the-road drivers.

Fred Mayerhofer, director of safety, said the accident frequency rate was cut to .72 per 100,000 miles, as against .74 in 1957. A high point of the year was the accident-free operation of 81 drivers who are based in Bedford, Pa., covering 1,700,000 miles in 14 weeks without so much as a scratched fender. He reported that 1,097 Spector highway and city drivers have earned National Safety Council Safe Driving awards for a year or more of accident-free driving. He said that Tony Jannotta, Chicago city driver for Spector, has completed 21 years of accident-free driving. Twenty seven other drivers have accident free records stretching over a decade or more.

• • •

A combination corrugated shipping container and display for safety toe shoes, made by Binghamton Container Company, Binghamton, New York, for Lehigh Safety Shoe Company, Emmaus, Pennsylvania, was awarded a Bronze Ribbon for Display Shipping Containers at the Fifth Fibre Box Competition sponsored by the Fibre Box Association in Washington, D. C., recently.

When the corrugated box is unpacked, the container is folded inside out and locked to form a display stand. A special printing process designed to reproduce half tone photographs on corrugated is used to give a high quality print job to the display.

• • •

At the Newark, Del., plant of Continental-Diamond Fibre Corporation, each employee has received an Eversharp pen from his foreman. Continental-Diamond Fibre Corporation, a Subsidiary of The Budd Company, manufacturers of vulcanized fibre, laminated plas-

LEGGE Damp Sweep Tool

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(Use Key # E21 on Inquiry Card on page 1)

tics and molded plastics materials, is presenting these pens to its more than 700 Newark employees as tokens of its appreciation for their part in achieving a splendid safety record. Inscribed on each pen is: "Continental-Diamond Fibre Corporation, Newark, Delaware, plant. Two million man-hours without a lost-time accident–1957–1959."

For this exceptional record, special plaques will be awarded to CDF by the National Safety Council, the Delaware Safety Council, and the Liberty Mutual Insurance Company. William Graham, Supervisor of Personnel and Chairman of CDF's Safety Committee, points out that these awards are an achievement in which everyone has a share.

"These awards are a result of the concentrated effort of all our employees," he says. "During the past two years, thanks to their wholehearted cooperation, we have gone from 67th to 2nd place in the Delaware Safety Council Inter-Plant Safety Contest."

During this period, strenuous effort by the Safety Committee revitalized the firm's total safety program. A number of activities were begun, under company subsidy, to make all employees safety-conscious. These included the promotion and fitting of safety eye-glasses and safety shoes, the showing of movies on safe work practices to everyone in the plant, safety talks by foremen and supervisors, and special safety "reminder" displays. Numerous suggestion awards were made to employees who recommended significant safety improvements on the job.

These many promotional activities soon showed results. Accidents were averted because employees directed their attention to the careful observance of rules. CDF became a chapter member of the Wise Owl Club of America, an organization whose membership is limited to industrial employees who have actually saved their sight from injury or loss by wearing eye safety devices.

• • •

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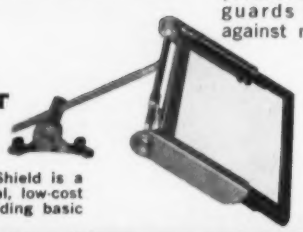

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(For details, use Key # E-8 on card on page 1)

The Iowa Division of the Izaak Walton League has presented awards for water conservation and pollution control practices to the Maytag company. This is the first time the Iowa Division has made any awards to industry. The two citations are being made for "Industrial Water Conservation" and for "Industrial Water Pollution Control," both being given in connection with Maytag's handling of toxic industrial wastes through its extensive chemical waste treatment facilities. Approximately a million gallons of water a day go through the treatment plant and nearly three-fourths of it is reclaimed for further industrial use.

• • •

A record low disabling injury frequency rate of 2.98 for each million man-hours worked in the chemical industry during 1958 was announced recently by the Manufacturing Chemists' Association. The record figure compares with a rate of 3.01 in 1957, and represents a 61 percent improvement over the 7.65 rate of 1946 when the MCA's General Safety Committee first started its industrial injury recording program.

During the 938 million man-hours reported to the Association for 1958, 2,800 disabling injuries occurred. For the same number of man-hours of exposure if figured at the 1946 frequency rate, disabling injuries would have totaled 7,184.

The aggregate time lost was 492,590 man-days giving a severity rate of 525 or 5 percent lower than the 1957 figure of 551.

MCA's disabling-injury frequency rate over past years has been somewhat lower than the National Safety Council's "all-chemicals" figure, and considerably lower than that published by the U. S. Department of Labor. For 1957 the MCA rate was 3.01, National Safety Council 3.55 and the U. S. Department of Labor 7.7.

It was pointed out that only companies primarily manufacturers of chemicals qualify for MCA membership, and therefore safety rates of repackagers, mixers and others handling but not manufacturing are not included in the MCA compilation.

It is felt that the constant im-

provement reflected by the MCA compilation highlights the extent and success of the chemical manufacturing industry's safety activities and achievements.

A large percentage of MCA member companies have active safety organizations and all members benefit from the advisory service provided by the General Safety Committee. This advisory service is available on request to any group, whether in or out of the chemical industry.

MCA in its quarterly safety report to members gives a breakdown of injury statistics according to company size. These figures support the theory that injury frequency rates in the large companies are generally lower than those for small companies. But at the same time they indicate very creditable achievement by the companies employing 250 or less in reducing the frequency rate by nearly two-thirds since 1952.

Commenting on the record safety rate by the Association's member companies, the chairman of the General Safety Committee, American Cyanamid's S. F. Spence, said "Chemical manufacturing safety men are to be congratulated on having shrunk the injury frequency rate below 3. But there can be no let up—no respite. During 1958, 54 men were killed on the job, two others were totally and permanently disabled and another 218 have lost eyes, legs, arms or fingers."

• • •

Nearly 3,000,000 accident-free manhours over an eight and one-half year period is the feat accomplished by the Ordnance and Signal Corps at the U. S. Army Engineer Center and Fort Belvoir, Va. In recognition of the efforts of these two staff sections, Major General Gerald E. Galloway, Post commanding general, presented the Commander's Award for safety to each section chief.

A breakdown shows the Ordnance Corps, with 30 military and 112 civilian personnel, performed its duties from June 10, 1952 until December 31, 1958 without a disabling accident. So far this year it has 301,137 accident-free manhours. The Signal Corps, with 69 military and 42 civilian personnel, worked without disabling accidents from July 4, 1957 to December 31, 1958. This year it has attained 227,086 accident-free manhours.

• • •

Union Carbide Metals Co. received a special citation from the National Society for the Prevention of Blindness, sponsor of the Wise Owl Club of America, at the Society's Annual Sight-Saving Conference. Union Carbide Metals Co. was commended "for outstanding the sight of its employees through vigorous devotion to the proved principles of industrial eye safety." The company is the first member firm of the Wise Owl Club to enroll one thousand employees who have been spared possible eye injury through the concientious use of eye safety wear.

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83% of all fire damage occurs when plants are closed.

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These deadly statistics may someday refer to **your** company, unless you leave it in capable hands when the front gate is locked. A trained watchman, rigidly supervised to keep him on his toes, is your best insurance against disaster.

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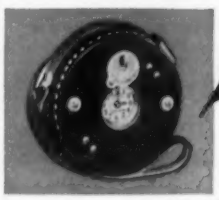

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UNTAMED NATURE

Man may soon conquer outer space, but we still haven't learned how to tame some of nature's disasters right here on our own little old planet. Such catastrophes as floods, tornadoes and blizzards account for plenty of victims and there isn't very much we can do about it.

But that's no reason for giving up on another type of misfortune... accidents. Those we CAN do something about. It's within our power to dam the flood of accidental deaths and injuries.

As we see it: **Accidents are not "natural"; they're man-made and easy to tame.**

Accidents, like showers, can spring up from out of the blue. If you think you're too smart, too experienced or too quick to need protective clothing or equipment when your job requires it, then take another look at what happened to Mr. Sunshine above.

The Silver Lining

A lot of things have been blamed on atomic research, including disagreeable weather. But the atom can't be the scapegoat for one thing . . . accidents.

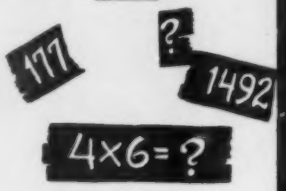
Atomic radiation is frightening to most of us because it's invisible as well as dangerous. But the amazing thing is that people working with nuclear hazards have one of the most remarkable safety records ever achieved.

If they can attain safety without even being able to see the danger, then the rest of us should be able to work equally as safely when most of our dangers are perfectly visible.

ACCIDENT ODDITIES

COW WINS TWO BOUTS: High way patrolmen were calle one night to the scene of a accident in which a car ha struck a cow. Or, was it tha the cow struck the car? A fe hours later there was a secon cow-and-car accident involvin the same cow. The cow lef under its own power, unin jured. But damage to the tw cars amounted to $475.

"Why, Harriet! I hardly recognized you. You look so much fatter in that mink coat!"



A Numbers Racket

If arithmetic is getting you down these days, try this number trick just for fun.

Multiply your age by two and add 5 to the result.

Multiply by 50.

Add the total amount of change in your pocket, but less than a dollar.

Subtract the number of days in a year — 365.

Add 115 for good measure.

In the resulting figure, the two left-hand figures are your age; and the two right-hand figures the amount of change you have.

- *What's the most beautiful sight you ever saw?*
- *What's the funniest comic strip you ever read?*
- *What's your favorite TV show?*
- *What book would you like to read again?*
- *What's your favorite baseball team?*

There are as many answers to these questions as there are people in the world. But there's one thing for sure . . . that if you want to enjoy any of these things again, there's one thing you would need . . . your eyesight.

- *Take care of your eyes.*
- *Get an eye check-up regularly.*
- *Wear eye-protective equipment when it's needed.*

Some Tips For the Road

Are your tires *really* as good as you think they are . . . or hope they are? Here's what a highway safety committee found out when they recently made a 10-day check of vehicles in a moderately large urban community. Of the thirty-six thousand vehicles checked, over 40% had one or more unsafe tires. In all there were over thirty-one thousand unsafe tires, and of these:

16 thousand had smooth treads

15 thousand had uneven wear

5 thousand had sidewall cracks

1 thousand had cuts or bruises

"It's colder at the South Pole"

Some people say that everything is "relative" — that nothing has any meaning unless it's compared with something else. For example, if you say, "It's cold," how cold do you mean? The North Pole is colder than the Equator, and the South Pole is colder than the North Pole.

Or, what does the word "recent" mean? To a ten-year old, it may mean yesterday; to you it may be last year; and to a geologist, it may mean 4,000 to 10,000 years ago.

But there's one thing that's *not* relative: The right way to do a job is always the safe way.

DEFINITIONS

A Tongue Twister is a group of words that gets your tang all tongled up.

Golf is a long walk punctuated with disappointments.

A traffic light is a trick to get pedestrians half way across the street safely.

A neck is something if you don't stick it out you won't get in trouble up to.

With Apologies —

Why did the little moron throw onions in the river? To see the River Kwai.

WATCH THAT SNEEZE — IT'S NO SPRING BREEZE!

FOR THE MISSUS

by Margo Fulton

CLOSET SAFETY TIPS: Closets can be the scenes of plenty of accidents, whether from poor lighting, over-reaching, or eye-level eye hazards. The next time you're closet cleaning, make some safety adjustments. With good lighting you should be able to see coat hangars better before they swing into your eyes or face. Hooks should be installed above head level. Shelves should be within an easy reach—not over 72 inches from the floor. If you do have to have higher shelves then have a small sturdy stepladder handy.

DO-IT-YOURSELF-FLAVORS: Pudding mixes are a quick and easy item for desserts. But if you'd like a variation on the standard flavors, buy some vanilla pudding and while cooking add two tablespoons of sherry or one tablespoon of instant coffee.

SALAD SPARKLE: The lowly lemon, workhorse of the expert chef, gives a touch of piquancy to most any type of salad. It's a particularly good addition to tuna salad to counteract any "fishy" taste.

THE FIRE FRONT

February Losses Dip

Estimated fire losses in the United States during February amounted to $98,120,000, the National Board of Fire Underwriters has reported. This loss represents a decrease of 5.5 percent from losses of $103,853,000 reported for February 1958, and a decrease of 13.2 percent from losses of $112,983,000 for last January 1959.

Losses for the first two months of 1959 now total $211,103,000, an increase of 3.6 percent from the first two months of 1958, when they amounted to $203,771,000. These estimated losses include an allowance for uninsured and unreported losses.

Airport Fire Safety

The lives of thousands of air travelers and four billion dollars worth of new commercial aircraft are imperiled by inadequate fire crash safeguards at U. S. airports, it is charged.

The National Fire Protection Association's Committee on Aircraft Rescue and Fire Fighting described the situation as "an urgency unparalleled in the history of air transportation."

"A large proportion of all civil airports," says the committee, "now have inadequate fire fighting facilities. They are seriously short of the needs for present day as well as future aircraft, not to mention the expected increase in air traffic."

"Failure to spend less than one percent" of the four billion dollars to be invested in new aircraft is responsible for this dangerous condition, the NFPA group contends.

It estimates that in the 1958–1963 period, over 1,000 long-range piston engine, turboprop and jet transports will be delivered to airlines, at a cost of approximately four billion dollars.

The committee urgently called for united action by airline and airport officials, government bodies, the fire service and aviation insurers to remedy the situation.

Failure to provide this protection, it said, "could result in severe economic penalties which would affect the entire air transport industry," besides the life safety considerations which are obviously paramount.

The committee indicated there has been gradual improvement since specific recommendations for aircraft rescue and fire fighting services for airports were issued in 1951 by the National Fire Protection Association, independent non-profit technical and educational organization in the fire safety field.

But in the immediate future about 100 civil airports will be serviced by the larger types of new aircraft. "With the increase in passenger travel, the larger capacity of the new aircraft and the heavier density of air traffic, an urgency exists which is unparalleled in the history of air transportation."

The National Fire Protection Association estimates it would cost approximately $150,000 for most of these major airports to each equip themselves in line with the organization's safety recommendations.

"This calls for an expenditure of approximately $15 million—a large sum of money, but it pales considerably against the magnitude of the airlines' four billion dollar investment in new aircraft.

"Until the day when airline operators and aeronautical engineers lick the crash fire problem by improvement in aircraft design, the need for this protection cannot be denied."

The NFPA committee stated that "some aviation officials reportedly have said that for U. S. airports to meet NFPA recommendations would bankrupt 85 percent of this nation's airports."

However, "the failure of civil airports to provide this protection could result in severe economic penalties which would affect the entire air transport industry."

The Cover Picture

Despite such safety precautions as safety glasses, protective shoes and gloves, apron, machine guards, etc., the operator has allowed oil to accumulate on the floor near his machine. A wayward chunk of red-hot metal falls to the floor and ignites the oil. The operator reaches for a new 2½-pound dry-chemical fire extinguisher unit, mounted near the machine, and quickly extinguishes the blaze.

Picture by courtesy of Ansul Chemical Co.

Who Is Responsible?

Division of responsibility is the primary reason for the unsatisfactory conditions that now exist in the U. S., the committee noted. Other complications arise from the fact that some airports are joint-usage handling both military and commercial aircraft operation. In these situations, sometimes the military and sometimes the local airport authority carries the burden of protection.

Fire supervisor, manufacturer's agent discuss new 30-pound portable. Note big, wheeled dry chemical unit (right).

ARE YOUR FIRE AS OF 1959

Here's how Chas. Pfizer & Co. re-evaluated its fire protection and re-organized it for today's problems.

Throughout its 109-year history, Chas. Pfizer & Co., Inc. has always had a high regard for the maintenance of an efficient and updated program of fire safety and control. Encompassing virtually all personnel, these fire prevention activities have kept pace with the growth of the drug and chemical firm from a single manufacturing unit in 1849 to its present stature as an industry leader.

Only by constant alertness to new equipment and fire-fighting techniques can a company achieve maximum security against potentially costly blazes, states L. C. Wimmer, production manager at Pfizer's huge Brooklyn plant. Several large and widely-publicized industrial fires in recent years have dramatically underscored the absolute necessity for periodic re-evaluation of fire control methods as a continuing policy.

Latest development at the Brooklyn plant has been the integration of an improvement program with existing safeguards, a systematic operation conducted over the past two years. Its purpose as related by Mr. Wimmer: "To tighten up our program even further and make us as fire safe as possible."

The first step was to establish a Plant Fire Committee composed of Mr. Wimmer, Raymond Seitz, head of the Engineering Department, and Aldo Osti, Safety Engineer. It meets monthly to consider plant safety problems. Answering to the Committee and directly charged with administration are Adolph Viehl, Fire Control Supervisor, and Edward Westrick, Fire Chief.

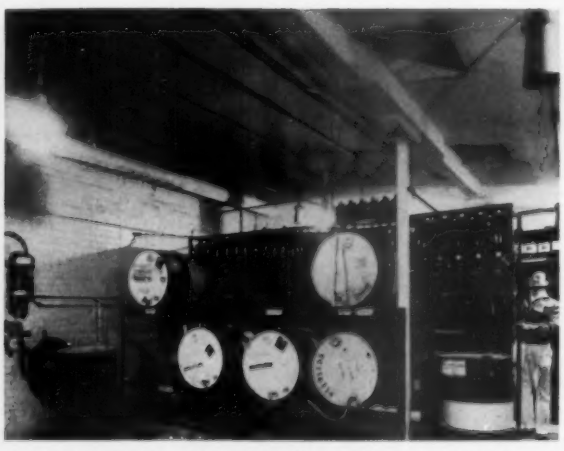
Pfizer's plant at 11 Bartlet Street comprises nine major buildings and a number of smaller structures spread over ten city blocks. Total floor area is over one and one-half million square feet. It provides a livelihood for approximately 5,000 employees.

Construction and Water: First Line of Fire Defense

The major buildings are of steel reinforced, concrete and brick construction and are subdivided into smaller areas with fire walls and self-closing fire doors. Nearly all areas of all buildings are water sprinklered with most heads set to

Fire Protection for Flammable Solvent

Supervisor checks light switch outside storage vault for solvents. Pull box permits extinguishing system activation.



Solvent vault view shows grounding devices, dry portable extinguisher, "fog" sprinkler, other fire protection apparatus.

DEFENSES UP TO DATE — OR 1949?

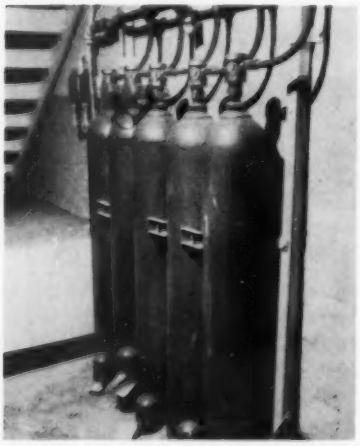
Conspicuous sign above extinguisher is notification that this is a water type variety, not for use on electrical fires.

Electrical, explosion-proof equipment is grounded, no-smoking ban, housekeeping rules are enforced. Note foam, CO_2, dry chemical units and portables at hand.

actuate at 165°F. These sprinkler systems normally draw from 50 to 60 psi city water, but can be fed from gravity flow aerial water tanks or with booster pumps and city water.

To complement its automatic sprinkler systems, each plant building has hose racks placed to provide almost complete coverage. Each rack contains 75 feet of hose and a nozzle. All major control valves on Pfizer's water systems are placed in accessible locations and contain signs outlining their functions and normal settings. Similarly, sprinkler systems are equipped with flow alarms which ring locally and at a central alarm station.

Storage



Cylinders contain inert, fire-smothering gas, are located near vault for solvents.

Portable Extinguishers Important

While the plant's water systems are important, those charged with fire safety hope that the portable extinguishers provided in the plant will quell fires before the water systems go into operation.

Portables are placed in the plant, commensurate with potential hazards in each plant area. A total of more than 1,300 water, carbon dioxide, dry chemical, or foam portables are available throughout plant buildings for first aid fire fighting. They are so located that dry chemical and carbon dioxide units are adjacent to potential electrical or flammable liquid hazards and water units stand guard where ordinary combustible fires can be anticipated.

The location of portable equipment is marked by conspicuous red and white wall-mounted signs. In addition, every portable has a "how to use" and "on what" label attached to it and a recharge tag. Extinguishers and valves are checked monthly and all wet chemical portables are recharged annually and carbon dioxide and dry chemical extinguishers are weighed semi-annually. Recharging of wet and dry chemical portables is done by Pfizer employees.

The company also has available three hand-drawn emergency trucks. Two of these are equipped with 250 gpm pumpers, portable extinguishers, and other emergency gear while the other is a rescue truck which contains a foam system, portable extinguishers, gas masks, resuscitator, rope, clothing and other rescue equipment.

Organization of Fire Brigades

No one knows better than Pfizer that even the finest plant in the world equipped with the most efficient fire extinguishing equipment

available is no safer than the personnel available to act in an emergency. As a result, Chief Edward Westrick drafted plans for an enlarged fire brigade.

First came the job of analyzing fire brigade personnel requirements in each area.

In an emergency how many tasks would have to be done?

How many valves would have to be manned?

For each potential hazard how much and what kind of extinguishing equipment would be required?

Only when the answers to these questions were available could the actual reorganization of the brigade be started.

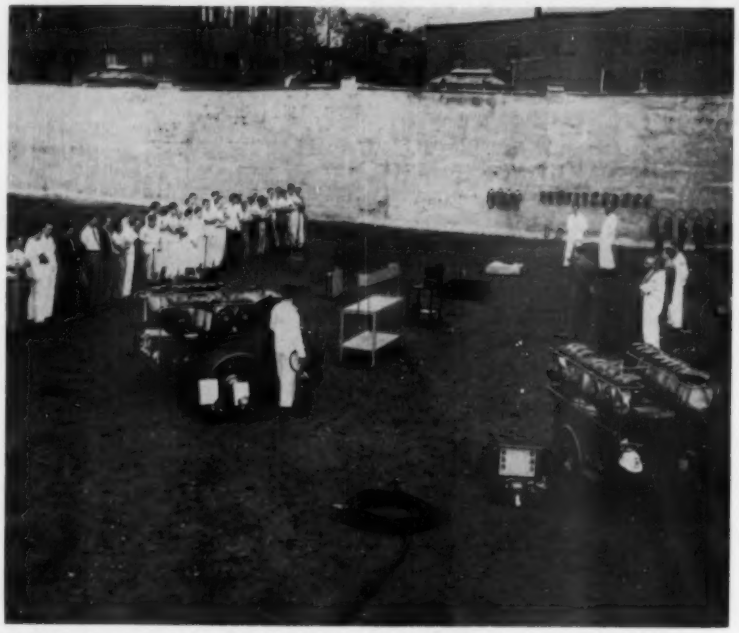
As the program now operates, the plant has a brigade of approximately forty-five persons. Considering shifts, holidays, weekends, and the like, at least twenty brigade members are always available. They are largely drawn from maintenance-engineering and guard personnel, although some production employees are a part of the brigade.

Practical fire safety lectures or extinguishing demonstrations are given brigade members monthly. These continuing drills keep brigade personnel alerted to changes in the plant or its production equipment, new safety techniques, and new hazards. They are then trained in methods of overcoming the new hazard.

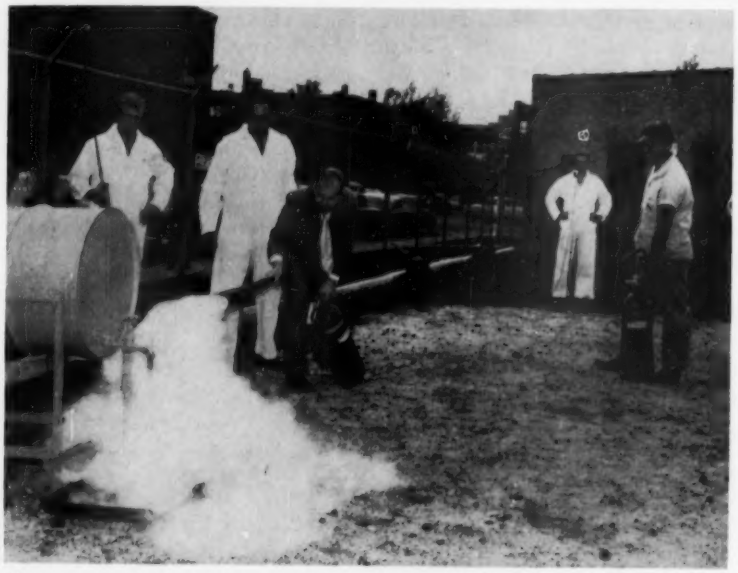
Pfizer's basic brigade is backed up by every plant employee, each of whom attends a fire fighting lecture-demonstration. About thirty of them are given annually to groups, each number up to 35 employees.

In addition, during Fire Prevention Week special events dealing with industrial and home fire safety are presented. In 1957 it was a full-scale, out-of-door fire extinguishing demonstration, and in 1958, films relevant to the subject shown at one end of the large plant cafeteria during lunch hours.

Fire Trained Employees Are



Plant employees attend fire-fighting demonstration-lectures annually. Instructor explains fire classes, portables for each. Employees, supervised, fight fires.



Like every other employee of the company, John E. McKeen, president, participates regularly in fire safety training. Here he puts out a gasoline blaze.

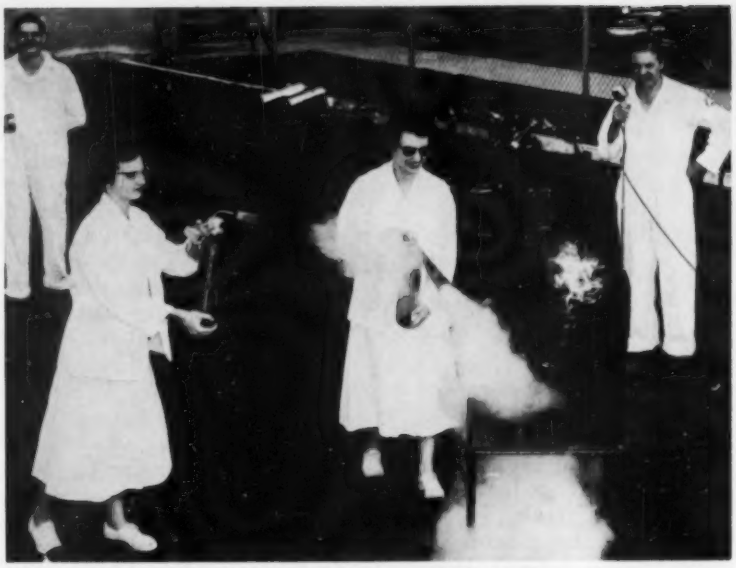
Special Equipment for Special Hazards

The Brooklyn plant has areas considered particularly fire prone, such as the flammable solvent storage room and the antibiotic recovery areas.

To guard the solvent vault an automatic carbon dioxide system stands fire guard. In case of fire, the rate-of-temperature-rise in the vault immediately causes detectors to trip nearby cylinders of carbon dioxide. Under its own pressure the fire smothering gas rushes from its cylinders, through piping, to multiple-jet nozzles. It discharges in the hazard area in sufficient volume to reduce oxygen to a degree insufficient to support combustion. The blaze literally is smothered in seconds.

These systems have pressure-

Ready for an Emergency



Women employees take their turn in fire demonstration lectures. Under coaching of fire instructor, they attack flammable liquid blaze with carbon dioxide unit.

This flammable solvent blaze at a simulated work bench is given an extremely brief life when subjected to a vigorous attack with a dry chemical portable.

At this point in the employee demonstration-lecture, foam is being sprayed on a flammable liquid fire and onlookers observe the technique to be followed.

operated switches and trips built into the carbon dioxide piping network. When actuated by the passage of gas, they shut down forced-draft ventilation and sound alarms.

Carbon dioxide is ideal for fires of this type. In addition to being an efficient fire extinguishing agent, it is an inert gas which means it cannot contaminate machinery and does not conduct electricity. Further, as it eventually dissipates into the atmosphere following discharge, it leaves no mess to be cleaned up.

For the recovery areas, both 40 gallon foam and 150 lb. dry chemical wheeled units are provided, backed up by larger capacity carbon dioxide and dry chemical portables. In addition, special effort went into training personnel who work in the areas in their operation.

Inspections and Good Housekeeping

It's impossible to have a fire if there is no source of ignition or no material on which fire can feed. Pfizer knows these simple facts and puts them to work for fire safety.

Experienced maintenance personnel see to it that electrical and production equipment is kept in top condition. The possibility that leaks, machinery breakdowns, electrical failures, or even welding sparks could ignite combustible material is minimized to the greatest degree possible. Regular maintenance schedules, weekly maintenance inspection reports, and alert personnel keep the program on its toes.

Complementary to this program is the good housekeeping plan practiced throughout the plant. Except where production requires it, flammable material is not permitted to accumulate. Unnecessary refuse accumulations just aren't to be found at Pfizer.

This program is pushed first of all by the fire safety program given to all employees. In the great majority of cases personnel know better than to practice bad housekeeping. All are alert to spot and eliminate possible debris on which fire could gain a foothold.

Should a bad condition go unnoticed by the usual employee, the chances are it would be caught by a fire brigade member or guard and corrected immediately.

In addition daily and continuing plant inspections are undertaken by fire control inspectors or Messrs. Viehl and Westrick. It's almost a certainty that any fire hazard that had gone unnoticed by less practiced eyes would be immediately recognized by these experts.

Neither man trusts to luck, however. Weekly checks of every building are made with the aid of a check-off list. In addition to area inspections designed to uncover potential or existing hazards, every piece of fire safety equipment is

physically noted and checked off. When these reports are completed and reviewed by Messrs. Viehl and Westrick, orders are immediately issued to correct the condition. These fire safety orders have the highest maintenance priority.

Special precautions are taken whenever welding is scheduled. The chances are that welding, long recognized as the cause of many a serious industrial fire, won't cause Pfizer trouble. Prior to the operation a Hazardous Operations Permit must be obtained by the welding crew. The welding area must be inspected by the department head concerned attesting that he has inspected the area before the job began and that it was as fire safe as possible.

While welding is going on, portable extinguishers are present for immediate, first aid action should a blaze flash.

After the work has been completed, the department head must re-inspect the area and re-sign the Permit.

Throughout the plant fire alarm pull boxes are available in addition to numerous out-of-door city fire alarm boxes. If an interior box is pulled a location coded alarm is relayed to a Central Station Signal office. This Station in turn notifies the local city fire precinct of the fire and its location by phone. Apparatus responds in less than two minutes. Cooperation between the city department and the company has resulted in city firemen being familiar with the plant and able to take prompt remedial action.

Other Warnings

Pfizer's fire alarm system is tested monthly. Plant telephones also are available for use in plant fire emergencies. Each phone has near it an instruction sheet listing all emergency procedures and numbers. In the case of a plant fire reported from within by phone, Pfizer's power house is notified. Personnel there promptly sound a location coded alarm on the plant whistle. Immediately the Pfizer brigade responds.

An integral part of the fire-emergency alarm procedure is a building evacuation plan. Each building has a Building Chief responsible for the orderly evacuation of his structure. Under him operate floor Captains and other appointed personnel to perform specific, predetermined functions when directed.

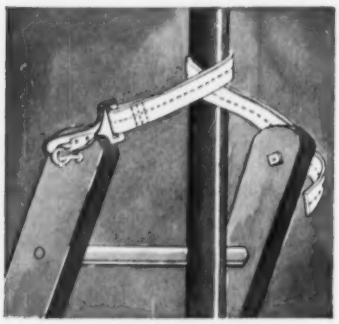
Every plant building has at least one evacuation drill a year. These drills have gone off smoothly and show that any building can be vacated in two minutes without confusion or panic.

Working with the New York Fire Department, Factory Mutual, the Factory Insurance Association, and with the wholehearted cooperation of management, Pfizer has developed a plant program which is as fire safe as any existent today. Pfizer's task now largely involves the human problem. It must continue to keep personnel safety conscious and the fire brigade constantly on their toes. It intends to do this with every tool at its command. However, in spite of the best preventive measures, occasionally small fires do flash. When they do, Pfizer knows that its emergency program will swing into efficient action and quell the blaze fast.

Awards in 1955, 1956 and 1957 for a superior fire safety program were made to Pfizer by the National Fire Protection Association and attest to the thoroughness of the program.

Pictures by courtesy of Walter Kidde & Co., Inc.

The Fire Equipment Manufacturers' Association, Inc., recently pointed out that a properly planned program of fire extinguisher care and maintenance will keep extinguishers ready for any emergency that may arise. All extinguishers should be examined at regular intervals to make sure that they have not been tampered with, or removed from their designated places, and to see that they are in full working order. FEMA also indicated that the average life for a portable fire extinguisher used in various institutional and industrial buildings is 15 to 20 years.



SAFE-HI LADDER LASH NEW STEP UP IN CLIMBING SAFETY . . .

Can Be Used on Horizontal or Vertical Poles or Pipes!

Knotty ladder ropes have finally come to the proverbial "end of their rope" since the invention of Ladder Lash, latest product of Rose Mfg. Co. The Safe-Hi Ladder Lash, a parachute web strap, solidly anchors ladders for high-climbing workmen, ending the hazards of wobbling, tottering ladders. Ladder Lash will anchor on poles up to 20" in diameter making it ideal for utility pole use as well as any other horizontal or vertical poles or pipes.

No Groping in Mid-Air

Ladder Lash does away with top-rung confusion. In one quick motion the strap is wrapped around any horizontal or vertical pole, the forged steel snap is clipped into the swivel eye bolt and the strap is pulled through the adjustment slide until taut. A simple device, Ladder Lash is easily attached to any ladder. Workmen are sure to like the dependable safety features of the Safe-Hi Ladder Lash.

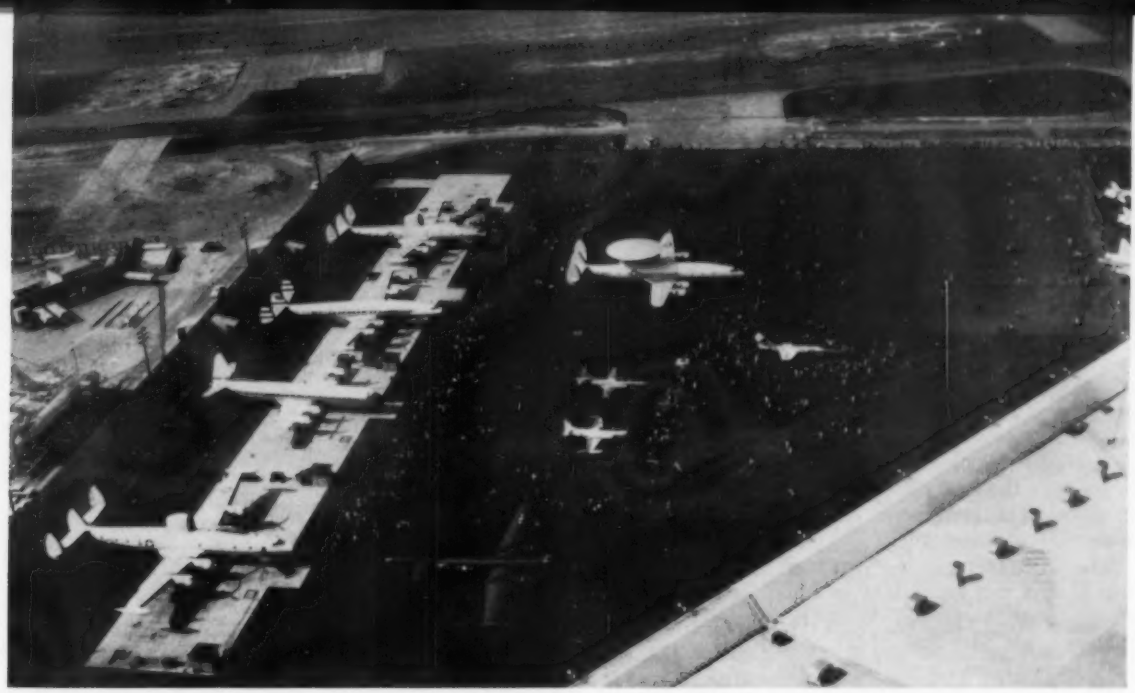
Safe-Hi Pole Grip Adds Extra Safety Feature

Use Ladder Lash and Pole Grip together for the extra measure of safety. Safe-Hi Pole Grip, already favored by "Higher-up's," is made of 4-ply web strap 26"x1¾" wide with a center section of neoprene tread for super gripping strength on vertical poles.

#632—Pole Grip #645—Ladder Lash

Safe-Hi ROSE MANUFACTURING COMPANY
2700 W. Barberry Pl., Denver 4, Colo.

(For details, use Key # E-10 on card on page 1)



This photo, taken from the roof of the new Lockheed Aircraft Flight Test Center, shows an impressive array of Lockheed aircraft, including three Airborne Early Warning planes, a Super Constellation, P2V Neptune, Carrier-Based fighters.

Fig. 1. The 350,000 gallon ground storage reservoir features 6 in. manual fill (not shown), 8 in. relief line (at right) and special 10 in. permanent test line.

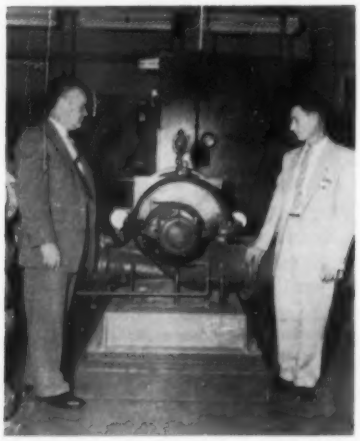


Fig. 2. The 8 in. fire pump boosts 2000 gpm at 125 psi. Heavy metal plate separates motor and pumping units.

FIRE PUMPS PROTECT FLIGHT TEST CENTER

Nine Million Dollar Investment Protected By Three Fire Pumps

A complex of more than five acres of laboratories, workshops, hangars and offices, the new Lockheed Flight Test Center in Burbank, California, represents a six million dollar investment with an additional three million dollars in equipment installed within the buildings. Included in the fire protective equipment for this considerable investment, are three fire pumps, including two motor-driven units and the largest engine-driven installation ever approved by the City of Los Angeles.

According to R. L. Thoren, chief of engineering flight and assistant chief engineer of the California Division of Lockheed, "The new center represents our continuing investment in those extra degrees of dependability, speed, comfort, economy and performance that spring from precision refinement and proving of aircraft."

Thoren is the man who, with six part-time assistants, opened aviation's first full-fledged engineering flight organization at Lockheed in 1938, twenty years ago. Questions of whether or not an airplane can fly are absurd nowadays. The real problems are speed, distance, dependability, economy and capability of airplanes.

Thoren's men are, in essence, "airplane doctors" performing surgery on time. They can "quick-freeze" a minute, stretch it out, compress it, stop it, dissect it at will, even look into the middle of a second for any physical changes.

To get an idea of the volume of work handled in the center, one fact is enough. Each phase of the flight engineering work is a "data point." The center processes 10,287 split-second data points daily.

Some of the more unusual laboratories at the center include: (1) a copper room, lined completely with fine copper screening to oust any possible electrical interference that would impair calibration of flying instruments; (2) a precision lab where instruments valued as high

as $100,000 per pound are built; and (3) a quiet room completely insulated with acoustic tile and fiber glass, again used for instrument calibration.

Flanking the precision laboratories are shops, offices, conference rooms, flight crews' ready rooms, lockers and equipment rooms for parachutes and other flight gear, control rooms, radio facilities and a photographic unit. Actual design, by Albert C. Martin and Associates of Los Angeles, was the end result of a two and one-half year study to envision the best physical layout to meet the exacting needs for such a precise organization.

The 232,000 sq. ft. structure, which rises the equivalent of four stories high, uses two fire protection systems. In the laboratories and non-hangar areas, fire hoses and standard sprinkler heads are ample guards against the hot aggressor.

The hangar ceilings are checkerboarded with 8 in. deluge pipes. Each separate system (there are 12) is 50 ft. by 200 ft. and contains 126 deluge heads and ten actuators. The actuators are dual controlled, setting off at either 160-degree heat or any 20-degree rapid temperature rise.

A 1920 ft., 12 in. fire loop surrounds the entire facility. Water is supplied to the loop by two 10-inch service lines from the incoming City of Los Angeles water main. The incoming water by-passes the fire pump house, providing direct protection at city main pressure.

A six inch line from the city main provides water for domestic use.

Fig. 4. Pressure is maintained in the fire loop, which is 1920 feet in length, through the use of this pair of pumps, each one of 10 horse power.

A 350,000 gallon capacity ground water storage reservoir is filled by a six inch line from the domestic main. (Figure 1.)

Installed alongside the fill line are two other pipes of interest. One is an 8 in. relief line, the other a special 10 in. testing line with quick-coupled, calibrated nozzles. This installation not only saves time usually consumed in stringing hoses for the semi-annual checkout that all approved fire pump installations must receive, but an additional safety factor has been added —elimination of a possible hose whip or break.

The 16 in. suction line from the reservoir runs under the pump house to the 12 in. loop and also serves as a common header for the pumps.

All three fire pumps are 8 in. Underwriters and Factory Mutual approved horizontal split case units. (Figure 2.) Each can supply 2000 gpm. at 125 psi.

Two squirrel cage motors are the driving power for the electric units. They are 200 hp., 3 phase, 60 cycle, 1750 rpm., 4160 volt motors. Incoming power for the city is at very high voltage. Using a bank of transformers the power is stepped down to 4160 volts for the motors and controls. By using the high-voltage motors and controls (first to be approved by the City of Los Angeles), the need for additional transformers was eliminated.

The third pump (Figure 3) is driven by a 280 hp. gas engine runing at 1750 rpm., the largest approved engine installed in the city for fire protection.

Two 10 hp., two-stage built-together pumps, each rated at 60 gpm. at a 300 ft. TDH, maintain 130 psi. in the 1920-foot loop. (Figure 4.)

The electrical units have specially built 4160-volt automatic controls. A pressure drop to 90 psi. will bring the first pump on the line, a drop to 80 psi. brings in the second one.

The engine driven unit, controlled by an automatic engine controller, comes on the line at either a drop to 70 psi. or a power failure. The engine unit is also started, automatically, every seven days for testing, the results being shown on a recorder.

The flight engineering hangar, 200 ft. by 400 ft., includes its own engine and propeller shops. The additional 200 ft. by 200 ft. of hangar space is divided from the flight test hangar and is presently assigned to structural testing.

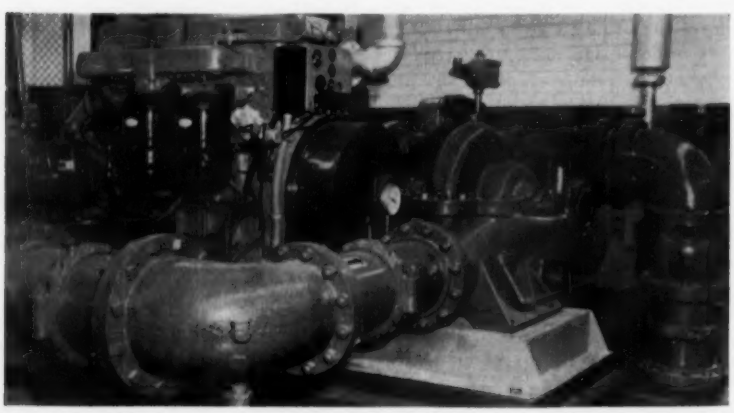


Fig. 3. An 8 in. fire pump powered by a 280 hp gas engine. Biggest approved engine-driven unit in city, unit enters line at pressure drop or power failure.

Pictures by courtesy of Fairbanks, Morse & Co

Public Health Meeting

Health authorities from various parts of the world are being invited to report on significant new programs at the 87th annual meeting of the American Public Health Association and meetings of related organizations in the Atlantic City Convention Hall, October 19–23, the association's executive director has announced.

Dr. Berwyn F. Mattison said that sessions will emphasize both practical community applications of recent scientific developments and "a timely review of the scientific bases for public health work."

Expected to attend are more than 4,000 public health specialists serving in governmental and voluntary agencies, industrial health work and private practice. They will include state, county and local health officers and staff members of the World Health Organization and U. S. Public Health Service.

Highlights will include presentation of the annual Albert Lasker Awards of the American Public Health Association and the Sedgwick Memorial Medal, highest awards in public health.

Plans call for scientific and industrial exhibits as well as scientific sessions and workshops. Scientific sessions are being planned by the Association's 14 specialized sections: dental health, engineering and sanitation, epidemiology, food and nutrition, health officers, laboratory, maternal and child health, medical care, mental health, occupational health, public health education, public health nursing, school health and statistics. Sections are planning joint sessions on topics of interest to several specialities.

Among related organizations planning sessions are the American Association of Public Health Physicians, American College of Preventive Medicine, American Industrial Hygiene Association, American National Council for Health Education of the Public, Association of Business Management in Public Health, Association of Schools of Public Health, Industrial Medical Association, Joint Commission on Mental Illness and Health and the Public Health Cancer Association of America.

The American Public Health Association, with headquarters at 1790 Broadway, New York, has more than 13,500 members and is the largest American professional organization of public health specialists. Its president is Dr. Leona Baumgartner, Commissioner of the City Health Department of New York.

During the past year the Association expanded and reorganized its program to meet changing needs. It now has regional offices in San Francisco, Calif., and Washington, D. C. Projects now in progress include the development of guides and manuals for community health study; for services to children with orthopedic handicaps, emotional disturbances and heart conditions; control measures for mental disorders; radiological health practice; control of nutritional diseases; chronic disease programs for state and local health departments.

Local arrangements are being made by a committee headed by Dr. Samuel L. Salasin, Health Officer of Atlantic City, N. J., and Dr. Daniel Bergsma, New Jersey State Commissioner of Health.

Research on Auto-Exhaust Purifiers

Before catalytic "mufflers" for oxidizing auto exhaust gases can become commercially acceptable, many difficulties must be solved by engineering development. Meantime, the idea of catalytic oxidation appears "technically feasible" even with leaded commercial gasolines.

This was reported recently by George J. Nebel and Ralph W. Bishop of General Motors Research Laboratories at a Society of Automotive Engineers' meeting on control of exhaust gas emissions. They tested an experimental oxidation catalyst. Also experimental was the device or converter containing the catalyst.

Two types of tests were run. A single converter was tested on Car A, a standard production model. Dual converters were tested on Car B which was equipped with a special carburetor supplying an enriched fuel mixture.

Car A was to test the catalyst and catalytic process. The Car B test was to supplement this and also find out if it is feasible to reduce hydrocarbons and oxides of nitrogen simultaneously. Combined control would be advantageous because both hydrocarbons and oxides of nitrogen are reported in Los Angeles smog.

(Continued on page 53)

How to Organize an Air Pollution

by **O. C. THOMPSON**
Coordinator, Waste Abatement
General Industrial Relations Dept.
Union Carbide Chemicals Division
Union Carbide Corp., South Charleston, W. Va.

Each company, and perhaps each plant of a company can be expected to have differences in their approach toward air pollution control. Organization for air pollution control may be set up as a staff function, as a line responsibility, or a combination of both. It can be expected to vary depending upon size of plant, type of operation, location, general attitude of the community toward industrial operations, the legislative situation with respect to air pollution control, and so on.

Elements for Successful Plant Pollution Control: The organization and programming for air pollution control begins with a clearly understood company policy. Written policy statements seem the exception rather than the rule.

Union Carbide Chemicals, with seven plants in five states, has a five-step written policy specifically covering process wastes and related community relations as follows:

1. Design Engineering Departments are responsible for incorporating into the design of any new installations, the means for disposal of all process wastes with a minimum of disturbance to the plant community.

2. Each operating plant will assign to some individual the responsibility for proper disposal of process wastes.

3. Each operating plant will assign Engineering and Laboratory talent for continuing studies of waste disposal.

4. Each operating plant will take an active part in any local committee groups or branches of agencies or trade associations interested in industrial waste disposal.

5. Each operating plant will assign to some individual the responsibility of representing the Company to the public on all matters pertaining to air or water waste disposal.

This written policy has proved to be of great value. It puts the responsibility for plant wastes control squarely where it belongs—on the plant management. It also makes clear that control of wastes begins with

Questionnaire Sent to Heads of Departments

Air Emissions Survey

Dear Mr._____:

The Head of each Operating Department is requested to develop the following information:

(1) Summarize and tabulate all wastes, gaseous or particulate, at present being discharged to the atmosphere from the buildings and operating areas under his jurisdiction. The waste sources will include still and reactor vents, tank vents, smoke stacks, compressor discharges, etc., etc. The data will cover the following required items:

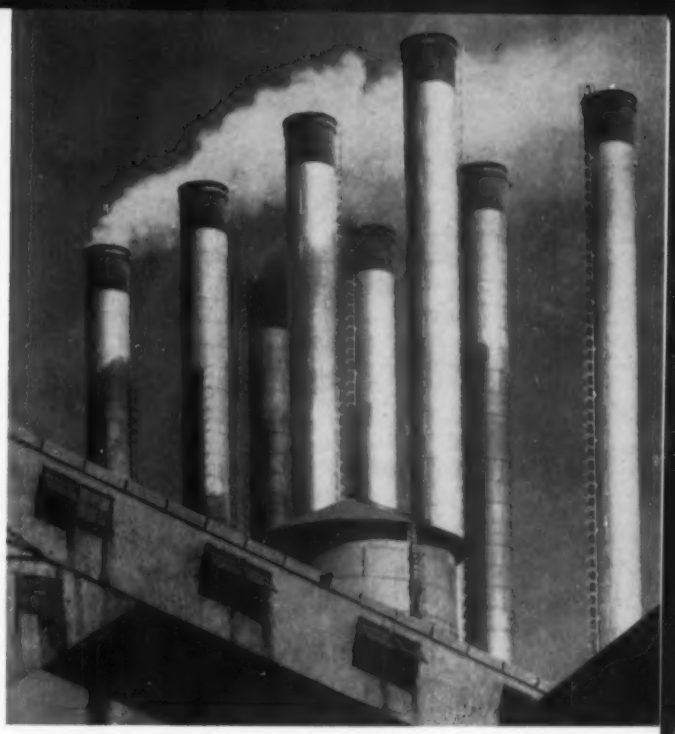
(a) Quantity of organic and/or particulate material involved in each stream, in pounds per day or month, whichever is most convenient.
(b) Volume of waste stream in std. cu. ft./min.
(c) Pressure and temperature at which it is vented.
(d) Other information such as range of variation, whether continuous or batch, etc.

(2) Your suggestions and recommendations as to how the waste materials may be reduced in quantity at the source, or disposed of to reduce atmospheric pollution.

This information is to be turned over to the writer for compilation. The purpose of this outline is to secure uniformity in the information obtained.

Very truly yours,

Control Program



product research and development in the laboratories, and that this control is extended through engineering, and the design and construction of each plant unit.

Technical Problems

An enormous volume of technical knowledge has been published on the many aspects of air pollution. Universities, foundations, consulting services, industrial companies, trade associations, and other agencies including all levels of government are now engaging in development and research on air pollution. The outpouring of published papers has become so great that bibliographies of newly published work are now issued on a regularly scheduled basis.[1]

Much valuable information on the various aspects of air pollution can be obtained from such publications as the Air Pollution Abatement Manual of the Manufacturing Chemists' Association[2] and the Air Pollution section of the manual issued by the American Petroleum Institute.[3] The Air Pollution Handbook[4] includes chapters on meteorology, sources, instrumentation, equipment, and other aspects of air pollution. All this technical data is of value to the design engineer and the air pollution control official.

How to Set Up a Program

The following steps are recommended for the organization and operation of plant air pollution control:

1. Place Responsibility: A qualified individual should be given the responsibility of wastes control of the plant. This may be limited to emissions to the air or may include all processing wastes of whatever nature.

2. Form a Committee: In some large plants with many production units of varying types, the forming of a committee has been found to be a successful means for arousing interest in and developing the practices necessary for wastes or pollution control. Usually a representative of each major department is designated for such a committee.

3. Assign Inspectors: These are often plant guards, watchmen or other employees whose duties require them to move about the plant frequently. Such inspectors should watch for and promptly report any excessive emissions.

4. Evaluate Your Problem: A beginning of this evaluation could be an inventory of emissions. For this a questionnaire, to be completed by the head of each department or processing unit, has been found useful. (See the accompanying sample copy.)

Once the inventory is completed the evaluation process can begin. A wide range of treatment can be expected. These may include engineering studies resulting in redesign or replacement of equipment, intensive campaigning for better "housekeeping," comprehensive plans for an educational program, etc.

5. Inform Your People: Recently a sanitary engineer member of a state water pollution control board offered a suggestion. He thought that since the problem of plant water pollution control was comparable to the never-ending efforts to improve employee safety, the same methods for "selling" it to plant personnel could be used. The same can be said of plant air pollution control. Just as is done in many plants in carrying out the safety program, the use of posters, articles in plant bulletins, group training in proper operation and maintenance—all these things are applicable for plant air pollution control.

6. Keep Active: This may seem an unnecessary admonishment. Yet all of us have seen fine programs started with much enthusiasm, only to soon "run out of gas." Careful planning may prevent such failures—if only attainable objectives are set—if the working group is imbued with the necessity of cleaning up and keeping clean. In other words, if air pollution control is made one of the normal functions of plant operation and maintenance, the program need not fail.

Experience has proved the value of certain beyond-the-plant activities. Three of these are added to our list as deserving of consideration.

7. Cooperate with Other Industries in the Area: This may include active representation in a local chap-

1 Abstracts, issued monthly—Air Pollution Control Association, 4400 Fifth Ave., Pittsburgh 13, Pa.

2 "Air Pollution Abatement Manual"—Manufacturing Chemists' Association, Inc., 1825 Connecticut Ave., N. W., Washington 9, D. C.

3 American Petroleum Institute Manual on Disposal of Refining Wastes—Vol. II, Gases and Particulate Matter—Fifth Edition.

4 Air Pollution Handbook (1956)—Edited by Paul L. Magill, Francis R. Holden and Charles Ackley—Published by McGraw-Hill.

ter of the Air Pollution Control Association. Plant interests may be served best by an informal group, made up of personnel active in the pollution control within the plants of the area. More formal developments of area industrial pollution control organizations have been created.[5] Any one of these can prove to be an excellent forum for discussion of mutual problems and exchange of experiences.

8. Win the Confidence of Civic Leaders, Health Officers, and Other Agencies of the Public: It should be recognized that the local health officers, or members of the municipal governing body can be a plant's understanding friends. It is good practice to invite these people into the plant. In this way they meet the responsible members of management and see for themselves the magnitude of the operations and pollution problems. They can then speak with the authority of knowledge when dealing with their public. And it is well to remember that accidental discharges of dusts, gases, etc. can occur in the best regulated plant!

9. Develop Good Community Relations: The word "community" as used here means the relatively small group held together by common interests, as typified by the average town and its industries.

Each plant has the continuing problem of being a "good neighbor" in its own community. A brief description of a tried and proved method for establishing good community relations is available.[2] This is the chapter on Community Relations of the Air Pollution Abatement Manual of the Manufacturing Chemists' Association. Quoting from it: "Methods of abatement are almost entirely engineering problems. The reason for abatement is almost entirely the community relations problems engendered by pollution. This is a job for individual companies, working at the local level."

A few guideposts to community relations may be listed:

a. Tell the Employees—This is the most important single group for at least two reasons: First, air pollution abatement **depends** upon the cooperation of the employees. Second, they can be the most effective agents for good community relations, by telling their friends and neighbors of the company's efforts.

b. Arrange Plant Visits—Conducted plant visits can be very effective. These can include employees' families, neighbors, and the opinion-forming leaders of the community such as clergymen, educators, local officials, and newspaper editors.

c. Keep Enforcement Agencies Informed—As one industrial engineer of a well-known air pollution control agency has stated: "All we ask of industry is honest effort and information about what it is doing. Among other ends it serves, this information is often used to defend industry against public accusations."

d. Handle Complaints Promptly—This should be self-evident, yet how many plants have **all** supervision alerted to investigate complaints promptly?

e. Establish Good Press Relations—The press is essentially fair-minded and the public is remarkably patient, if the facts are made available and the facts indicate actions in good faith.

Case Histories

Examples of actual plant problems and how they were handled may be helpful.

To avoid water pollution of the Kanawha River, chlorinated hydrocarbon wastes of the South Charleston Carbide Plant are burned in an open burner. This seemed a happy solution to a serious problem—until some new catalyst mixtures were burned during a two-day atmospheric inversion with nearly 100% humidity. To make a long and sad story short, that unhappy coincidence caused damage to the finish of hundreds of automobiles. How this situation was handled is quite a story in itself. The important point to emphasize here is the way this expensive lesson has been used to prevent repetition.

Metal plates, painted with car lacquers and enamels are now placed around the plant. Plant watchmen and gate guards are instructed to note and promptly report to the supervisors on duty any unusual emissions. By this means and by the regular inspection of the paint samples, no recurrence of extensive auto finish damage has occurred.

A particle-fall survey is being conducted in the general area surrounding one of the Company's plants. This is a cooperative project in which Carbide and a neighboring plant of another company share the work and the costs. When this was being planned, it was agreed that the State Health Department should be invited to participate in the technical discussions. Not only was the invitation accepted; the Director of the Health Department even offered the use of their mobile laboratory. The mobile laboratory has not been needed, but by bringing the technical staff of the Health Department in on this work as it was being started, the equipment, methods of analysis, interpretation of results, and all other technical matters have been agreed upon by the industrial teams and the responsible health agency of the state. The data developed by this survey is not intended for public release. However, it is to be made available to the Health Department if needed.

Among Most Difficult Problems

This particle-fall survey is an interesting example of one of industry's most difficult air pollution problems. It involves fly ash emission from pulverized coal-fired boilers. Many plants have community relations problems because even the most expensive combinations of mechanical and electrostatic precipitators cannot prevent some dust escape to the air. The operation and proper maintenance of this type of equipment typifies the importance of the human element in the control of industrial air pollution.

5 Industrial Air Pollution—William G. Christy, Consulting Engineer—Published in Industrial Wastes, September-October, 1958.

From an address presented at the 10th Plant Maintenance & Engineering Conference. Picture by Ewing Galloway.

Auto Exhaust Purifier Research

(from page 49)

1. In the Car A tests, catalytic oxidation reduced hydrocarbon and carbon monoxide emission substantially. However, actual reduction depended on many factors. After warmup, the converter would be 75 percent effective in typical driving conditions. Oxides of nitrogen were not affected by the catalytic oxidation process.

2. In Car B tests, the combined control method removed about 90 percent of both hydrocarbons and oxides of nitrogen from exhaust gas.

"The catalyst is resistant to tetraethyl lead combustion products. Useful life of the catalyst is estimated to be about 12,000 miles, after which replacement or rejuvenation seems desirable," they reported.

Meanwhile, these experimental converters pose "practical problems" affecting their potential use on standard motorcars, Mr. Nebel and Mr. Bishop explained.

1. Noise: Exhaust converters don't muffle exhaust noise satisfactorily. They were not intended to. Preferable way to reduce the noise level would be to incorporate acoustical muffling characteristics into the converter design, rather than use an auxiliary muffler. Also, the air aspirator on the device produces a high-pitched whine at times.

2. Size: The experimental converters were 40 inches long, 12 inches wide, 8 inches high, which obviously reduced car road clearance. Total weight was 95 pounds, including the 25-pound catalyst and 15 pounds of connecting pipe.

3. Heat: During the tests heat from the converter charred one rubber floor mat. Conceivably this may affect car fuel and brake fluid lines, as well as passenger comfort.

4. Back Pressure: Back pressure was increased moderately by the converter. "Improved design may reduce the pressure drop across the converter," the report said, "but probably not enough to equal that of a conventional exhaust system because a certain amount of pressure is required for air aspiration."

5. Fuel Consumption: With Car A fuel mileage differed only two-tenths of a mile per gallon from a standard car. With Car B and its enriched fuel mixture, fuel economy was 11.8 miles per gallon whereas the standard car averaged 15.9 miles.

Thus, the special carburetor would make fuel consumption "an important problem" for a car owner, whereas the converter has little effect.

6. Odor: Drivers of Car A complained of a strong odor associated in some undetermined way with the catalytic converter. Noticed only occasionally, it was described as sweet and pungent. It was unnoticed with Car B.

The report also pointed out that the single converter used in Car A after 23,000 miles of service was still in good mechanical condition. It was fabricated of heavy stainless steel.

Durability of the Car B dual converters was unsatisfactory. Warpage and weld cracks appeared before 10,000 miles. The test had to be abandoned because of exhaust gas leakage and the unit was "beyond reasonable repair."

Special goggles provide safety for workmen, relieve tired eyes.

FOG-PROOF
GAS-TIGHT
GOGGLES

Hug face securely but comfortably. Can be worn with any respirator. Fog is removed from the lenses by an easy nod or shake of the head. A few drops of water on inner wall of lens do the trick.

COVER goggles and respirators are known world over for reliability. Send for literature.

See your safety equipment supplier or order your sample direct — $2.00 postpaid. Write today.

H. S. COVER

Dept. 509 South Bend 14, Indiana

"Respirators for Industry Since 1894"

(For details, use Key # E-11 on card on page 1)

Isopropylamine Data Sheet

Safe handling practices for isopropylamine, pungent ammonia-like liquid used industrially as an intermediate in the synthesis of pharmaceuticals, rubber chemicals, dye stuffs and insecticides are described in a chemical safety data sheet just issued by the Manufacturing Chemists' Association.

MCA's 15-page booklet details the hazards of the chemical and describes their control through preventive engineering, employee training, and the use of protective equipment. Other sections deal with handling, storage and waste disposal and adequately cover the medical aspects and necessary first aid measures.

Copies of "SD-72, Isopropylamine" are available at 30 cents each from the Manufacturing Chemists' Association, 1825 Connecticut Avenue, N. W., Washington 9, D. C.

Manufacturing Chemists' Meeting

The 87th annual meeting of the Manufacturing Chemists' Association will be held June 11–13 at The Greenbrier in White Sulphur Springs, W. Va. John L. Gillis, vice president of Monsanto Chemical Co., is program chairman. More than 700 chemical industry executives attended the 1958 meeting.

NEW AEROSOL HAND PROTECTION

The development of a new type of hand protection in an aerosol package for mechanics, garagemen, utility workers, farmers and for many types of industrial, institution, office and laboratory use is announced by Acrolite Products, Inc. Called "Protex-A-Hand," the new hand protection is designed to keep hands clean and germ-free and to prevent dirt, grease and other grime from clogging the pores, in addition to cutting the daily washing time. Field tests show that one application before starting work forms an invisible "protective glove" to seal out grease, dirt, paints and varnishes, oil, and stains, solvents and chemicals, and other messy and possibly harmful materials. Made with lanolin and glycerine, it comes from the aerosol can in foam cream form and is rubbed right into the area to be protected. At the end of the work period, the individual washes his hands in water, carrying off the cream and any accumulated grease and grime. Regular use of this product is said to help heal rough, scaly hands.

For details, use **Key # SP-1** on inquiry card on page 1.

POISON IVY AND OAK CONTROL

"Imunivy" and "Imunoak" are standardized non-toxic alcoholic extracts of poison ivy or poison oak. When taken as directed they will eliminate or reduce substantially the incidence of poison ivy or poison oak. These products, sold by the E. D. Bullard Company for over 30 years, are reported to be between 80 and 88% effective. As no two individuals are exactly alike, the extent of benefits secured from "the extracts" vary.

"Imunivy" and "Imunoak" can be given orally or injected intramuscularly by a physician. The majority of the companies using these products make them available in the early spring. They are taken one vial in ⅓ of a glass of water, milk or fruit juice, two days in a row, followed by one vial every month until frost destroys the plants in the fall of the year. A number of companies prefer having their employees take the products in the

SKIN PROTECTION DEVELOPMENTS

spring and in the fall, while others use it monthly the year around. "Imunivy" and "Imunoak" are packaged, four 1cc vials in a single Unit Pack.

For details, use **Key # SP-2** on inquiry card on page 1.

NEW PROTECTIVE CREAMS

Three new creams that provide protection against virtually any skin irritant commonly encountered in industry have been developed by Mine Safety Appliances Company. The new creams, called M-S-A FEND, are now available in three special-purpose formulas. FEND A-2 has a vanishing cream base, reinforced with a combination of salts that ward off water-insoluble irritants, such as tar and grease. FEND I-2 has a non-vanishing cream base with petrolatum for maximum protection against water-soluble irritants. FEND S-2 is a silicone-reinforced vanishing cream which provides a barrier against diverse soluble and insoluble irritants. It is especially adaptable for long-lasting protection.

All three cream formulas contain hexachlorophene for bacteriological and anti-fungus effects, as well as an exclusive deodorant. They can be removed easily in mild soap and water. An emollient feature prevents drying, cracking, or chipping.

For details, use **Key # SP-3** on inquiry card on page 1.

WATER REPELLENT SKIN CREAM

"**S**ealskin," a new protective coating, announced by the Cadet Laboraties, Inc., is enriched with lanolin to provide positive insulation against harsh solvents and other industrial irritants. The cream, fortified with silicones, can be easily applied. It sets under cold water and blots dry to form an invisible waterproof "glove." Hands treated with "Sealskin" are said to be impervious to acids and alkalis. Dyes,

stains and grime wash off with soap and water without destroying its effectiveness.

Special applications for "Sealskin" include: food processors who must use acids and brine solutions; industrial workers who handle acids and solvents; engravers who must prevent bromide poisoning and acid burns; laundry and dairy workers who use detergents and caustic solutions; etc.

For details, use **Key # SP-4** on inquiry card on page 1.

PROTECTIVE SKIN COAT

A new siliconized formula that gives double the effectiveness at no extra cost is now being offered in "Go-Jo Protective Skin-Coat." The job and production time losses caused by industrial dermatitis are said to be greatly reduced by Go-Jo which develops a protective barrier to prevent infectious ingredients from penetrating the pores of the skin. Upon application it protects hands like an invisible glove, retaining hard-to-remove ingredients on the surface and stopping skin penetration of grime, paint, inks, carbons, adhesives, detergents, etc.

For details, use **Key # SP-5** on inquiry card on page 1.

IMPROVED INDUSTRIAL HANDCLEANER

Called "Lan-O-Kleen Plus," a new, non-depleting lanolized handcleaner has been introduced by West Chemical Products, Inc. It is described as offering a softer scrubbing action that doesn't roughen skin; a gentler sudsing action that doesn't wash away natural skin oils; a new clean fresh fragrance; and a rich lanolin content that soothes and softens hands.

Lan-O-Kleen Plus is manufactured by an exclusive West process that impregnates ingredients into finely ground corn meal particles. In washing, these particles are said to have a gentle, sponge-like action that soaks up potential skin irritants without excessive rubbing.

For details, use **Key # SP-6** on inquiry card on page 1.

PROTECTIVE SKIN CREAM

From the laboratories of The Rex Oil & Chemical Company comes an improved product designed to provide skin protection for industrial use. It is a soft, greaseless cream, containing lanolin for protecting workers' hands and arms against skin irritations and infections from cutting oils, solvent, paints, resin, dyes, etc. Easy to apply, "Rex Protective Hand Cream" forms a thin film which only water can dissolve and also will not leave finger marks. To remove, just wash the hands with soap and water. This will dissolve the protective film and carry the dirt away with it, leaving the hands soft and clean.

For details, use **Key # SP-7** on inquiry card on page 1.

NEW POWDERED SOAP DISPENSER

Bobrick Dispensers, Inc. announce a new low cost powdered soap dispenser—the Model 381. Reflecting the newest concepts in the utilization of modern materials for product improvement, the 16 oz. capacity globe of the 381 is made of "Hi-fax" rigid linear polyethylene. Translucent and unbreakable, impervious to shape distortion and discoloration, this new material has lifetime wearing qualities and is highly resistant to stress cracking. The new globe is constructed with extra wall thickness for perfect rigidity. It is said to have the largest capacity of any push-up plastic globe dispenser manufactured.

The new Model 381 incorporates an "adjustable output mechanism" which allows adjustment for more or less soap per stroke. Furthermore, it is designed to dispense any free-flowing powdered soap—including the borax type. The body of the new powdered soap dispenser is of heavy metal, one-piece, chrome plated and highly polished. It is filled by swiveling over the "Hi-fax" globe, unscrewing it from the base, and pouring the powder in. When the filled globe is screwed back into the body and swung into the upright position, the body automatically locks in place.

For details, use **Key # SP-8** on inquiry card on page 1.

MEDICATED HAND CREAM

"Miricil," a medicated hand cream, manufactured by the Miricil Chemical Co., Inc., is reported to heal raw hands ruined by harsh detergents and cleaners. This new cream vanishes completely into the skin, is soothingly emollient, relieves the mild itching of "acid mantle" and provides protective action in combating contact dermatitis.

The cream contains 3% of Burow's Solution and roughly 1% Boric Acid which in combination buffers the cream to a pH of about 4.6 or 4.8. The cream has also been emulsified, using a non-ionic emulsifying agent which is not irritating to inflamed skin. 5% of "AQ6," a cholesterinated petrolatum lubricant, used as a lanolin substitute because it has no allergenic properties, is also included.

For details, use **Key # SP-9** on inquiry card on page 1.

SILICONE PROTECTIVE CREAM

A new protective cream and lotion, "Sanchia," has been introduced by Otis Clapp & Son, Inc. Containing silicone, these protective preparations are reported to have a mild, pleasing fragrance, long-lasting effectiveness, a smooth consistency and a nearly neutral pH, adjusted to normal skin acidity.

The cream and lotion, easily applied, form an invisible barrier against prolonged exposure to moisture, irritating soaps, body discharges, irritants and allergens, poison ivy and poison oak, paints, chemicals, glass and hair fibers, etc. "Sanchia" repels moisture and irritants while remaining non-toxic, inert and non-sensitizing, the manufacturer states.

For details, use **Key # SP-10** on inquiry card on page 1.

NEW LINE OF PROTECTIVE CREAMS

The Chase Chemical Co. has introduced a new line of protective skin creams to the industrial field. "Glov-Kote Standard" is formulated to provide protection for the face, hands and arms against paint, ink, grease, oil, etc. This cream forms a protective coat which washes off easily with soap and water. It helps keep the pores open at all times for easy breathing, lessening the danger of dermatitis infections.

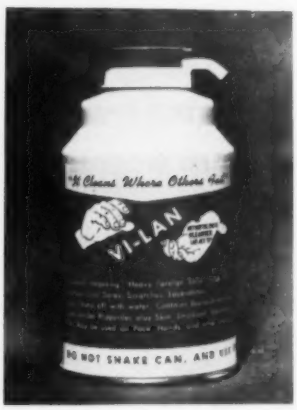
"Glov-Kote Water Repellent" cream provides protection against gasoline, kerosene and cutting oils. This cream does not clog the pores and can be washed off with ordinary soap and water. "Donovo Mentholated" also helps to combat the skin-drying and cracking effects often associated with the use of harsh detergents, kerosene and gasoline, etc. This lanolated skin cream restores depleted oils and soothes irritations. As is the case with all the Chase products, this cream can also be easily washed off with soap and water.

For details, use **Key # SP-11** on inquiry card on page 1.

SKIN CLEANER IN AEROSOL CAN

Waterless paste cleaners are now available in a new aerosol can through the manufacturing and research facilities of the Dameron Enterprises, Inc. "Vi-Lan," now packaged in an aerosol dispenser, is a suitable cleanser for factory use, hospitals, clinical laboratories, first aid departments, etc. It is claimed to remove safely such foreign soils as paint, tar, creosote, asphalt, grease, etc. from cuts, sores, burns and suture wounds. Also can be used to remove adhesive left on skin from tape. Paste rinses off easily in water. The product can be used on any part of the body.

For details, use **Key # SP-12** on inquiry card on page 1.



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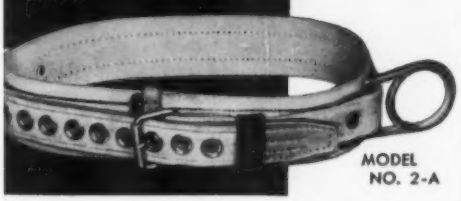


MODEL
NO. 2-A

n addition to the friction type buckle, l MILLER body belts can be obtained ith a "tongue buckle." Outstanding rength is built-in by separating (not utting) the tongue webbing to insert lid brass grommets—backed up with ugh, dry tannage steer hide. And, the clusive MILLER Dee Ring is standd equipment. Ask for complete details.

ller EQUIPMENT COMPANY, INC.
FRANKLIN, PA.
in Canada SAFETY SUPPLY CO., TORONTO

r details, use Key # E-12 on card on page 1)

BABCOCK

Industrial SAFETY ENGINEERED LADDERS

This NEW Twin Front Safety Step Ladder designed with steps on *both* sides, is ideal for Industrials and Contractors.

Selected stock—Heavy Duty hardware—with 1/4" rods under steps. Strong and built for a long life of service.

Make it BABCOCK and lower your replacement cost.

Write for the Babcock Industrial Ladder folder, describing other Extension Ladders, Single Ladders and Step Ladders.

Underwriter's Approved

Be Sure • Be Safe • Buy Babcock

The W. W. BABCOCK CO., INC. • BATH, N. Y.

(For details, use Key # E-13 on card on page 1)

ERLESS CLEANER

ormulated "Mel-O" is a y hand cleaner that rease, oil, paint, ink, car- and glue without water It contains Hexachloroch leaves a bacteria-kill- and lanolin that reural skin oils lost in hands to help control Simply apply "Mel-O" ork in thoroughly—then sidue by wiping with per towel.

ils, use **Key # SP-13** on d on page 1.

WATERLESS HAND CLEANER

Mione "Waterless Hand Cleaner," made by the Mione Manufacturing Co., is now available in 5 ounce, "Squeeze to Use" tubes. Designed for "on job" use when water isn't readily available, it does an effective cleaning job on such hard to remove stains as grease, carbon, paint, printers ink, gum, tar and asphalt. Containing lanolin and G-11, the cleaner quickly brings deeply imbedded grime to the surface where it can be removed with any wiping agent. Twelve tubes of Mione "Waterless" are contained in a printed, corrugated counter display carton. The cleaner can also be used with water.

For details, use **Key # SP-14** on inquiry card on page 1.

NEW LOTION-TYPE CLEANER

Announcement of "Go-Jo Loshon," the new lotion-type hand cleaner, was made by Gojer, Inc. Based on a new concept of hand-cleaning efficiency, the new lanolin-fortified lotion is reported to be as safe as cosmetic lotion. Amazingly fast in removing stubborn soil, grease, cement, paint or tar, it can be used either with or without water. Packaged in an attractive new can with dependable one-shot "leak-proof" ejector, the 32 oz. container holds enough lotion for 340 hand washings.

For details, use **Key # SP-15** on inquiry card on page 1.

NEW POWDERED SOAP DISPENSER

Bobrick Dispensers, Inc. announce a new low cost powdered soap dispenser—the Model 381. Reflecting the newest concepts in the utilization of modern materials for product improvement, the 16 oz. capacity globe of the 381 is made of "Hi-fax" rigid linear polyethylene. Translucent and unbreakable, impervious to shape distortion and discoloration, this new material has lifetime wearing qualities and is highly resistant to stress cracking. The new globe is constructed with extra wall thickness for perfect rigidity. It is said to have the largest capacity of any push-up plastic globe dispenser manufactured.

The new Model 381 incorporates an "adjustable output mechanism" which allows adjustment for more or less soap per stroke. Furthermore, it is designed to dispense any free-flowing powdered soap—including the borax type. The body of the new powdered soap dispenser is of heavy metal, one-piece, chrome plated and highly polished. It is filled by swiveling over the "Hi-fax" globe, unscrewing it from the base, and pouring the powder in. When the filled globe is screwed back into the body and swung into the upright position, the body automatically locks in place.

For details, use **Key # SP-8** on inquiry card on page 1.

MEDICATED HAND CREAM

"Miricil," a medicated hand cream, manufactured by the Miricil Chemical Co., Inc., is reported to heal raw hands ruined by harsh detergents and cleaners. This new cream vanishes completely into the skin, is soothingly emollient, relieves the mild itching of "acid mantle" and provides protective action in combating contact dermatitis.

The cream contains 3% of Burow's Solution and roughly 1% Boric Acid which in combination buffers the cream to a pH of about 4.6 or 4.8. The cream has also been emulsified, using a non-ionic emulsifying agent which is not irritating to inflamed skin. 5% of "AQ6," a cholesterinated petrolatum lubricant, used as a lanolin substitute because it has no allergenic properties, is also included.

For details, use **Key # SP-9** on inquiry card on page 1.

SILICONE PROTECTIVE CREAM

A new protective cream and lotion, "Sanchia," has been introduced by Otis Clapp & Son, Inc. Containing silicone, these protective preparations are reported to have a mild, pleasing fragrance, long-lasting effectiveness, a smooth consistency and a nearly neutral pH, adjusted to normal skin acidity.

The cream and lotion, easily applied, form an invisible barrier against prolonged exposure to moisture, irritating soaps, body discharges, irritants and allergens, poison ivy and poison oak, paints, chemicals, glass and hair fibers, etc. "Sanchia" repels moisture and irritants while remaining non-toxic, inert and non-sensitizing, the manufacturer states.

For details, use **Key # SP-10** on inquiry card on page 1.

NEW LINE OF PROTECTIVE CREAMS

The Chase Chemical Co. has introduced a new line of protective skin creams to the industrial field. "Glov-Kote Standard" is formulated to provide protection for the face, hands and arms against paint, ink, grease, oil, etc. This cream forms a protective coat which washes off easily with soap and water. It helps keep the pores open at all times for easy breathing, lessening the danger of dermatitis infections.

"Glov-Kote Water Repellent" cream provides protection against gasoline, kerosene and cutting oils. This cream does not clog the pores and can be washed off with ordinary soap and water. "Donovo Mentholated" also helps to combat the skin-drying and cracking effects often associated with the use of harsh detergents, kerosene and gasoline, etc. This lanolated skin cream restores depleted oils and soothes irritations. As is the case with all the Chase products, this cream can also be easily washed off with soap and water.

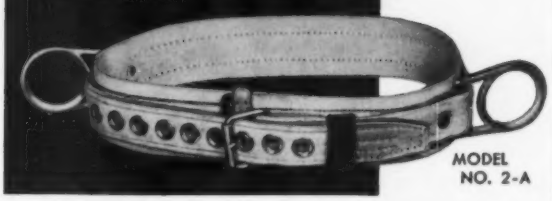
For details, use **Key # SP-11** on inquiry card on page 1.

SKIN CLEANER IN AEROSOL CAN

Waterless paste cleaners are now available in a new aerosol can through the manufacturing and research facilities of the Dameron Enterprises, Inc. "Vi-Lan," now packaged in an aerosol dispenser, is a suitable cleanser for factory use, hospitals, clinical laboratories, first aid departments, etc. It is claimed to remove safely such foreign soils as paint, tar, creosote, asphalt, grease, etc. from cuts, sores, burns and suture wounds. Also can be used to remove adhesive left on skin from tape. Paste rinses off easily in water. The product can be used on any part of the body.

For details, use **Key # SP-12** on inquiry card on page 1.

NOW ALL
MILLER
BODY BELTS
ARE AVAILABLE
WITH
TONGUE BUCKLE



MODEL
NO. 2-A

In addition to the friction type buckle, all MILLER body belts can be obtained with a "tongue buckle." Outstanding strength is built-in by separating (not cutting) the tongue webbing to insert solid brass grommets—backed up with tough, dry tannage steer hide. And, the exclusive MILLER Dee Ring is standard equipment. Ask for complete details.

Miller EQUIPMENT COMPANY, INC.
FRANKLIN, PA.
In Canada SAFETY SUPPLY CO., TORONTO

(For details, use Key # E-12 on card on page 1)

BABCOCK

Industrial SAFETY ENGINEERED LADDERS

This NEW Twin Front Safety Step Ladder designed with steps on *both* sides, is ideal for Industrials and Contractors.

Selected stock—Heavy Duty hardware—with ¼" rods under steps. Strong and built for a long life of service.

Make it BABCOCK and lower your replacement cost.

Write for the Babcock Industrial Ladder folder, describing other Extension Ladders, Single Ladders and Step Ladders.

Underwriter's Approved

Be Sure • Be Safe • Buy Babcock

The W. W. BABCOCK CO., INC. • BATH, N. Y.

(For details, use Key # E-13 on card on page 1)

WATERLESS CLEANER

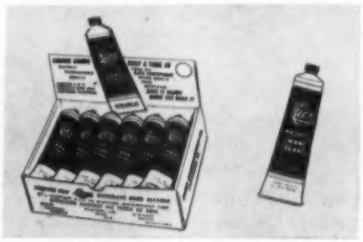
Newly formulated "Mel-O" is a mild creamy hand cleaner that removes grease, oil, paint, ink, carbon stains and glue without water or rinsing. It contains Hexachlorophene which leaves a bacteria-killing residue and lanolin that replaces natural skin oils lost in scrubbing hands to help control chapping. Simply apply "Mel-O" to hands, work in thoroughly—then remove residue by wiping with cloth or paper towel.

For details, use **Key # SP-13** on inquiry card on page 1.

WATERLESS HAND CLEANER

Mione "Waterless Hand Cleaner," made by the Mione Manufacturing Co., is now available in 5 ounce, "Squeeze to Use" tubes. Designed for "on job" use when water isn't readily available, it does an effective cleaning job on such hard to remove stains as grease, carbon, paint, printers ink, gum, tar and asphalt. Containing lanolin and G-11, the cleaner quickly brings deeply imbedded grime to the surface where it can be removed with any wiping agent. Twelve tubes of Mione "Waterless" are contained in a printed, corrugated counter display carton. The cleaner can also be used with water.

For details, use **Key # SP-14** on inquiry card on page 1.



NEW LOTION-TYPE CLEANER

Announcement of "Go-Jo Loshon," the new lotion-type hand cleaner, was made by Gojer, Inc. Based on a new concept of hand-cleaning efficiency, the new lanolin-fortified lotion is reported to be as safe as cosmetic lotion. Amazingly fast in removing stubborn soil, grease, cement, paint or tar, it can be used either with or without water. Packaged in an attractive new can with dependable one-shot "leak-proof" ejector, the 32 oz. container holds enough lotion for 340 hand washings.

For details, use **Key # SP-15** on inquiry card on page 1.

BARRIER SKIN CREAM

A vanishing, barrier type protective skin cream has been introduced by the H. W. Stover Co. The company claims its product is a result of the utilization of modern principles in formulation and the use of G-11 hexachlorophene.

Known as "Protective Skin Cream" #202, it is said to be an effective safeguard against many forms of industrial dermatitis, and to have a pH factor of seven. Protecting against and aiding in the removal of adherent materials to which the skin may be exposed, it is effective against paints, lacquers, thinners, airborne dusts, grease, grime, etc. The cream will not stain nor cause hands to become slippery or perspire.

For details, use **Key # SP-16** on inquiry card on page 1.

ANTISEPTIC EMOLLIENT HAND CLEANER

A new preventive for aiding replacement of natural skin oils removed by harsh cleaners and detergents on hands is "Creamedic Antiseptic" hand cleaner and lotion, manufactured by the Harley Soap Co. It contains G-11 Hexachlorophene that destroys resident and transient bacteria on the skin if used daily and aids in the prevention of dermatitis. The addition of lanolin protects the skin against rough, summer-dryness and cold weather chapping. "Creamedic" is used by pouring several drops into the hands, massaging thoroughly into the skin, then wetting hands, working up a lather, and rinsing dirt away. Designed for most liquid or lather soap dispensers, it is available in gallon jugs, and 5, 15, 30 and 55 gallon drums.

For details, use **Key # SP-17** on inquiry card on page 1.

NEW DISPENSER FOR ON-THE-JOB WASHUP

"Sta-Lube" waterless hand cleaner announces a new precision-built dispenser. Because no water is needed, the handy "Sta-Lube Dispenser" can be placed right at the work station to remove grease, paint, mastic, ink, tar, etc. This saves washroom trips and the expense of cleaning messy sinks and opening clogged drains.

Better than 800 cleanings are obtained from one gallon of cleaner

when the special dispenser is used, because each dispensing operation releases just the right amount for a thorough cleanup. This means savings of up to 50% in hand cleaner expense. Available from Sta-Lube, Inc.

For details, use **Key # SP-18** on inquiry card on page 1.

NEW HAND CLEANER DISPENSER

A copper-finish aluminum dispenser is being offered with 3 five-pound cans of waterless hand cleaner by Mac's Super Gloss Co., Inc. The dispenser eliminates waste by measuring out the correct amount of hand cleaner. One shot ordinarily suffices, while two are enough for the grimiest hands. The dispenser holds over three pounds, is quickly loaded, self-priming and sturdily made for years of trouble-free service. Mac's new waterless hand cleaner is becoming known for its ability to remove stubborn embedded grease, ink, paint and all types of carbon and grime.

For details, use **Key # SP-19** on inquiry card on page 1.

Safety Equipment

(from page 15)

they should be used only where conditions will permit safe escape in the event of air supply failure. Care must be taken to locate the blower air source in an area which is free of air contaminants.

(c) **Air-Line Masks** supplied by plant compressed air are suitable for use only where conditions will permit safe escape in case of failure of the compressed air supply. Such masks should be used only in conjunction with a suitable reducing or demand-type valve, excess pressure relief valve, and filter. The compressed air should be checked frequently to make certain that harmful gases from the decomposition of the lubricating oil used in the compressor, or impure air supply, are not present.

If a confined space containing a high concentration of acetylene gas must be entered, care must be taken to avoid all possible sources of ignition.

Fire Fighting

A fire involving a continuous discharge of acetylene from equipment or a burning cylinder should be attacked with judgment and planning to avoid the possibility of releasing a sufficient quantity of free acetylene into the atmosphere which may later result in an extensive flash fire or explosion. This is especially important inside a room or building not provided with adequate ventilation. Water, preferably in spray form, can be used to good advantage in keeping exposed facilities or construction cool while the necessary arrangements are made to stop the supply of acetylene fuel. It is better to let the acetylene be consumed by burning until the flow can be stopped than to extinguish the fire too soon.

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New Materials
(from page 21)

ing brass, spring steel, and fiber due to its long wearing qualities and resiliency which reduces or eliminates excessive wear to metal surfaces.

Zirconium—Liners of zirconium metal are now available for a variety of basic processing equipment such as columns, tanks, reaction vessels, and tubing. Zirconium is dual-resistant to corrosion and protects against either acids or alkalis.

Piping

Ceramics, masonry, iron, copper, and lead have provided the principal materials used for the transfer of liquids, suspension, and slurries. The limitation of these materials are well known.

Stainless Steel—The stainless steel alloys—principally types #410, #430, #304, #316—provide excellent service where applicable. The stainless steel pipes and tubings are available in many sizes and schedules. Fabrication is by welding, rolled flanges or screw threads.

Aluminum—Aluminum pipe fabbricated by welding or the use of special slip-on fittings is used in increasing amounts for hand rails and guard rails exposed to corrosive atmospheres. They maintain a good appearance and do not require painting. Aluminum conduit and associated aluminum fittings are finding extended use in chemical plant operations.

Glass—New tough glass piping provides a means for handling corrosive waste, as well as metallic-contamination-free inter-connecting lines for tanks, reactors, coolers and condensors in the chemical and pharmaceutical industries. Glass piping has a surface that is easy to clean and due to its transparency can always be visually inspected.

Polyethylene—For common water and many corrosive services as well, today's polyethylene pipe enjoys greater acceptance than was ever imagined. It is by no means an "across the board" substitute for steel or metallic pipe but does give in numerous installations important cost saving advantages over conventional materials. It is nine times lighter than steel, resistant to acids, alkalis, and most chemicals and wholly non-toxic in handling fluids

Surety saves you money

FOUR-2-ONE

VINYL IMPREGNATED WORK GLOVES

PROVIDING

Longer Wear at Lowest Cost

As the name indicates, count on these Surety gloves outwearing cotton and many leather types **four or more to one** in most work.

Users report great resistance to snagging and abrasion plus easy finger flexing and hand comfort. You can wash them, too; come up sparkling bright and lint free. Available in men's and women's sizes, two styles illustrated. Want samples? Check your Surety distributor or write today.

THE SURETY RUBBER CO.
CARROLLTON, OHIO

In Canada: Safety Supply Co., Toronto

(For details, use Key # E-14 on card on page 1)

Entirely American Made

the Rapido Line

Fastest Custom Fit Frame In The World

FITS ALL YOUR WORKERS COMFORTABLY:

- Patented Retrax® Temples slide in or out for instant fit.
- Universal Nose Bridge, a perfect fit for every worker.

ACCOMMODATES YOUR PRESENT STOCK OF 57 LENSES:

- Spread-end frame makes lens replacement easy
- For plastic, glass or prescription lenses

ALSO

- Nylon hinges for superior strength
- Extra deep lens channels for extra safety
- Choice of popular frame colors

For details, see your Authorized Eye Savers Supplier

WATCHEMOKET OPTICAL CO., INC.

232 West Exchange St. PROVIDENCE 3, R. I. *In Canada: Levitt-Safety Limited, Toronto 10, Montreal 26, Winnipeg.*

(For details, use Key # E-15 on card on page 1)

for human consumption. Complementing the advantages of flexible polyethylene piping are the completely compatible plastic insert fittings and adaptors of molded modified polystyrene material.

Polyethylene pipe has a maximum temperature limitation of about 125°F. and non-shock working pressure of 75°F. from 50 to 100 pounds depending on the size. A recent record installation of over 6,000 feet of 6" polyethylene pipe was installed for transfer of corrosive chemicals in a zirconium and titanium sponge plant.

Polyvinyl Chloride—Of the extrudable plastic pipe materials, polyvinyl chloride possesses a wide range of corrosion resistance. A completely amorphous material, it does not age, is immune to galvanic or electrolytic attack, has low flow resistance, and there is no danger of rodent damage. Maximum operating temperature for plain end pipe is 140°F. and threaded pipe 120°F. Maximum operating pressures at 75°F. for schedule 40 pipe are from 45 lbs. to 300 lbs. depending on size and manufacture. Connections of P.V.C. can be made by cemented joints, hot air fusion welding, or threaded connections. The new tetrafluoroethylene base thread compounds are being used successfully with P.V.C. piping.

Graphite—"Karbate"—Impervious carbon and graphite armored pipe and fittings ("Karbate") are well known and widely used in chemical industry for their corrosion resistance, freedom from metallic contamination, resistance to thermal shock, light weight, and ease of fabrication. Pipe is available from ½" to 4" sizes and assembled by means of screwed fittings with cemented threads. Working pressure up to 75 lbs. hydraulic or 50 lbs. steam and temperature which keep the body of the material below 338°F. are recommended. Due to the excellent heat transfer properties of "Karbate" it is frequently used as tubes in the heating chamber of evaporators for recovery of dilute sulphuric acid solutions.

Lined Piping

In those process applications where corrosion, pressure, and temperature or combinations of these conditions prevent the economical use of steel, stainless, aluminum, graphite, high silicon iron, glass, or straight plastic pipe, consideration should be given to the use of lined steel pipe, or nickel alloys pipe.

Vinylidene chloride—"Saran"—Vinylidene chloride copolymer resin is resistant to most inorganic chemicals and to many organic solvents. "Saran" lined steel pipe involves locking a rugged "Saran" liner within a steel tube so firmly that the liner and tube expand and contract as one unit. The outside of "Saran" lined pipe is made to standard iron pipe sizes. "Saran" lined pipe has a temperature range from minus 20°F. to 200°F. and a pressure rating of 300 pounds maximum at 200°F. Pipe, screwed "Saran"-lined fittings and valves are available.

Tetrafluoroethylene – "Teflon" – Pipes lined with "Teflon" withstand some of the most corrosive chemicals used in industry. Pipe is fabricated with flanges and the "Teflon" liner flared over the flange. This gives complete protection for the metal from process fluids and eliminates the need for special gaskets. A complete assortment of standard size "Teflon" lined flanged fittings are available. "Teflon" lined pipe and fittings have a temperature range from minus 90°F. to 500°F. and a pressure rating of 400 pounds maximum.

Nickel Alloys—"Monel" and "Hastelloy"—Pipe, fittings, flanges, and accessories of "Monel" and "Hastelloy" are available in a number of sizes and schedules. Fabrication is by welding or screwed threads. The various properties and use of these alloys has already been discussed in connection with process equipment.

Vapor and Moisture Barriers

Versatile polyethylene film has proven to be an excellent moisture barrier under concrete floor slabs or over the fill in crawl spaces inside the foundations. The film is strong, resists puncturing and tearing and will not rot or mildew. Fastened to the inside surface of studs this film makes an excellent vapor barrier for walls. In the .006" thickness a 1000 sq. ft. weighs under 30 pounds.

Polyethylene films are also used as curing blankets for new concrete, soil fumigation covers, and termite fumigation building covers. A fabricated polyethylene film multiwall air inflated balloon has been used in chemical sewer manholes to provide a fume barrier while repairs were made to the manhole cover, floor and top layers of brick.

Glazing and Floors

Deterioration of steel sash and the associated difficulties of maintaining crack-free glass in a movable section of the sash are problems common to many facilities. The acrylic and polyester reinforced fiberglass plastics offer an assistance to the solution of these problems.

The acrylic materials are known for their optical clarity, high impact strength and weight of about one-half of that of glass. The material is available in masking paper protected sheets, can be cut with an ordinary fine tooth cross-cut saw, and installed in the sash with conventional clips and glazing compounds. As the surface of the plastic is more easily scratched than glass, the protective masking paper coverings should remain in place until actual installation is started.

The polyester reinforced fiberglass materials are in constantly expanding use for industrial glazing. The materials are available in a number of colors and have the property of screening out a high proportion of the ultra-violet and infra-red radiation. This results in cooler buildings in the summer time. Panels are available in both regular and special fire-resistant grades. The material can be cut with an ordinary fine tooth cross-cut saw and installed with clips and glazing compounds.

When steel sash replacements are necessary, consideration should be given to corrugated or formed polyester fiberglass sheets. The polyester sheets can usually be installed with a minimum of structural support modification and at cost equal or lower than new sash and glazing.

For replacements or installation of new skylights, consideration should be given to the use of the new acrylic plastic bubbles that can be had pre-formed and molded to shape.

The rapid development of mechanized haulage has subjected floors to services that were not contemplated by the original designer. Location, design of supporting structure, down time, and cost often do not justify complete replacement. Therefore, a number of patching materials and overlays are offered for repair.

Bituminous mastics (hot and cold) are applied to secure water and chemical resistance. Floor patching and surfacing materials of bitumen base are available and can be spread to a feather edge over a properly prepared and primed surface.

Mixtures of sand, cement, grout and controlled amounts of rubber latex in place of mixing water are finding wide use as floor patching materials.

Mixtures using as their base the phenolic, polyester, epoxy, urethane, and other resins are offered for patching to feather edge on wood, concrete, and brick floors. The choice of products is dependent on exposure, floor loads, and existing surface conditions.

On chemical brick floors the failure is usually in the mortar and not the brick. Many of these floors can be repaired by grinding or raking out the joints and pointing with one of the newer furane, modified polyester, or epoxy cements. If complete rebuilding is required, then a membrane of modified polyester saturated fiber glass cemented into place can be used as an underlay. The new brick wearing surfaces are laid up with furane, modified polyester, epoxy or phenolic cement consistent with exposure.

Complete floor overlays of a neoprene latex base material reinforced with hardware cloth and burlap have provided excellent surfaces for washroom and shower rooms over old wood and concrete floors.

Office and manufacturing floors are frequently covered with rubber or asphalt tile. As replacements are necessary or new areas are to be covered, the new vinyl asbestos and vinyl flooring materials should be considered. The vinyl material necessitates less frequent maintenance and can be obtained in a larger variety of colors and patterns.

Building repairs and alterations frequently require the use of tarpaulins. The vinyl and polyethylene sheet plastics offer an economical solution. As an added feature they permit the transfer of light when used as temporary barriers for walling off areas for alterations or outside exposures.

Polyethylene is available in rolls with widths up to 32 feet center folded for easy handling. One thousand square feet of .004" thickness polyethylene weighs less than 20 pounds. For outside storage covers to protect lumber, cement, surplus equipment and other uses, a special formulated black weather-resistant polyethylene is used.

"Give me a pair of those to wear to the dance tonight!"

Safety Equipment

The use of sheet metal, wire mesh, and glass insert safety guards has in some cases restricted the area of observation and prevented effective guarding. The acrylic plastic materials known for high impact strength, optical clarity, and ease of fabrication have improved this deficiency. These materials are widely used for industrial safety shields, shear knife guards, squeeze roll guards, and in some cases for covers of entire automated machine increments. Acrylic plastic tubing in ⅛" wall thickness in conjunction with machined or molded phenolic blocks is readily adaptable for the guarding of long gauge glasses.

Cotton sash cord or hemp rope is often used as safety barricades but has the disadvantage of being deteriorated by acids and alkalis. New polyethylene rope in six colors and seven diameters is now available for the purpose. Made up in standard lengths, it can be checked in and out of the tool room for repeated usage.

Glass carboys in wood crates, glass jugs, and bottles, are the traditional containers for transfer and storage of distilled water, corrosive liquids, laboratory reagents, and many other products. Due to the weight of the containers and possible fracture of the glass they have always presented a problem to the safety engineer. The molded high strength flexible and rigid polyethylene materials are now available in a wide range of carboys, bottles, pails, and vessels as replacements. These plastic containers are both light in weight and exhibit high resistance to rupture and fracture.

Pre-talcumed plastic gloves formed by heat sealing 1¾" mil polyethylene are being used for hand protection against acid, dyes and solvents. These gloves are rugged enough to be reusable and inexpensive enough to be disposable.

Polyethylene heat sealed bags also are used as sanitary liners for rubber boots. Each user is furnished with a set of bags for his personal use each time the boots are checked out of the tool room.

Of the materials already enumerated, numerous other applications such as bearings, bushings, cutting tools, diaphrams, electrical parts, gaskets, gears, guides, heat sealing plates, hose, insulation, impellers, packing, pumps, and miscellaneous items could be discussed.

These are but a representative group of the newer materials available for maintenance. Advancing technology—demonstrated by the newer materials for maintenance of existing buildings and equipment—indicates an even greater development in the future.

Careful consideration of the new materials for maintenance of existing facilities can make impressive reductions in cost, improve quality of products, increase safety, and permit more extensive application of the practices of preventive maintenance.

From an address presented at the 10th Plant Maintenance & Engineering Conference. Pictures by courtesy of Visking Co., Div. of Union Carbide Corp.

INSTALLATIONS & APPLICATIONS

News From Manufacturers

Open Grate Flooring

Interior view of this well-designed Contra Costa Power Plant of Pacific Gas and Electric Company is highlighted by the use of open-grate flooring. The flooring is fabricated of Blaw-Knox grating, electro-forged for strength and permanence. The roughened, twisted bar styling provides a safe, easy-to-walk-on surface to the grating, which is highly functional.

Vacuum Cleans Instruments

Manufacture of certain delicate apparatus demands that extremely close attention be given to the thorough removal of all foreign matter from the equipment during the assembly operation.

At the Sperry Gyroscope Company, Great Neck, New York, Spencer Turbine vacuum equipment is used to accomplish such removal. Precise in itself, Spencer equipment removes from such delicate instruments as this Navy Gunsight Computer any dust or dirt which may have accumulated in the assembly process.

"Deep Freeze" Fire Alarm Gets Warm Send-Off

Pinning a card on this special, completely automatic Gamewell Fire Alarm Receiving and Control System, Miss Massachusetts of 1958 sends seasonal greetings to snowbound U. S. Naval personnel manning Operation "Deep Freeze" at McMurdo Sound, Antarctica.

Specially designed and built by The Gamewell Company, Newton Upper Falls, Massachusetts, the unit will protect irreplaceable equipment as well as human lives. It will centralize 54 separate supervised automatic fire detector circuits located throughout buildings in the base camp.

Annunciation will be possible from any one of the 54 zones—red panel lights indicating individual alarm areas. The system utilizes a common alarm bell and trouble buzzer. Amber lights indicate circuit trouble. Silencing switches are provided for each circuit.

inside the trade

CLARENCE J. WILLIAMS
1884–1959

Clarence J. Williams, long recognized as one of the early pioneers of the safety movement, died in Chicago on March 16 at the age of 74.

As head of Williams Jewelry and Manufacturing Co., 10 South Wabash Ave., Chicago, founded in 1883 by his father, Mr. Williams is credited with introducing to industry the development of incentive awards in the form of plaques, trophies and emblems for outstanding plant and personal safety records. He was a leader in the movement to grant tangible evidence to employees for individual efforts in building safety achievements throughout industry.

Mr. Williams is survived by Mrs. Williams, five children and eighteen grandchildren. The business will continue under the leadership of "Tex" Williams, long associated with his father as active head of the company.

Donald O. Carlson has been appointed Mid-West Representative, Industrial Footwear and Gloves, the *B. F. GOODRICH Footwear and Flooring Company,* Watertown, Mass., as announced by *O. M. Hessler,* Manager, Industrial Footwear and Glove Division, Hood and B. F. Goodrich brands.

Mr. Carlson has been working out of the Minneapolis Branch since 1955 as a B. F. Goodrich Footwear salesman. In his new position, he will headquarter at the Chicago Branch and cover the entire Mid-Western territory.

Bernard L. Dougherty, from the B. F. Goodrich Chicago Branch, replaces Carlson at the Minneapolis Branch.

Leon D. Kemper, a new salesman, will cover the Chicago territory formerly covered by Dougherty.

Formation of an *Industrial Division* by *AMERICAN-STANDARD* has been announced by *Joseph A. Grazier,* president. The new division was created by the consolidation of the *American Blower, Kewanee Boiler* and *Ross Heat Exchanger Divisions.* The Industrial Division will continue to manufacture and market the same products made by the three separate divisions. Among these are air handling and air conditioning equipment, commercial and industrial boilers, Fluid Drives, heat exchangers and surface condensers.

President of the Industrial Division is *John W. Brennan,* formerly president of the American Blower Division. He will maintain offices at division headquarters in Detroit. Other appointments include: *Edwin W. Petersen,* vice president, marketing; *Donald L. Clithero,* general sales manager.

W. C. DILLON COMPANY, INC., manufacturers of thermometers, dynamometers and other scientific testing instruments, announce the appointment of *Brian Engineering, Ltd.* of Montreal as exclusive distributor of Dillon thermometers in the Province of Quebec. *Joseph M. Brian,* president of the Canadian Firm, recently completed an orientation run-through at Dillon's Van Nuys, California, plant where he witnessed complete manufacturing processes—including the meticulous calibration of these precision instruments. Mr. Brian is well known throughout engineering circles, having worked with Canadian firms for many years. He will be appointing dealers throughout the Province of Quebec and will carry a sizable stock of Dillon instruments in order to make prompt off-the-shelf deliveries. Brian Engineering, Ltd., is located at 5275 Van Horne Avenue in Montreal.

THE CAMBRIDGE WIRE CLOTH COMPANY, Cambridge, Maryland, has announced the establishment of a new Middle West sales territory to better serve the needs of manufacturers in that fast-growing area. The new territory will embrace Colorado, Nebraska, Kansas, Oklahoma, Missouri, Iowa and Arkansas.

Sales and service operations within the new territory are under the direction of *Andrew J. Lutz,* formerly with the industrial chemicals sales staff of the Wyandotte Chemicals Corporation. Mr. Lutz's headquarters are at 4627 Wornall Road, Country Club Plaza, Kansas City, Missouri.

Appointment of *Jerome A. Ryan* as Assistant Manager of Solvent Sales, *Chlorinated Products Division of DIAMOND ALKALI COMPANY,* is announced by L. P. Scoville, General Manager of the Division. At his new post, Ryan will assist *C. W. Wheeler,* Manager of Solvent Sales, in the sales of Diamond solvents, produced at Painesville (Ohio); Belle, West Virginia, and Houston, Texas. Ryan has a background of 15 years' experience in the technical sales service field. He joined the Diamond organization in May, 1954, as a serviceman in the Technical Service Department. The new assistant manager is a graduate of the University of Alabama, from which he earned his B. S. degree in Geology in 1942. He is serving on a committee of the American Society of Testing Materials.

ANSUL CHEMICAL COMPANY, Marinette, Wisconsin, has formed a foreign-based subsidiary to develop its growing foreign markets and provide better service to foreign customers. The new company, Ansul International Corporation, S. A., has begun handling distribution of Ansul products to all countries outside the United States.

Operating this new subsidiary will be *L. T. Plouff,* vice-president and general manager, and *H. C. Higley,* vice-president, sales manager and secretary. Higley will continue as secretary of the parent U. S. corporation. *Robert C. Begotka* will become assistant to the vice-president.

Paul L. Weinheimer has been assigned as a safety products sales engineer in San Francisco, Calif., for *MINE SAFETY APPLIANCES COMPANY,* Pittsburgh. He had been serving in a similar capacity in the Akron, Ohio, area and replaces E. M. Witzel, resigned. He is succeeded in Akron by Richard A. Yost who had been associated with the firm's Safety Products Marketing Services.

The Technical Products Div. of MINE SAFETY APPLIANCES COMPANY has announced the appointments of several new sales engineers in the territories indicated: William J. Young (Houston, Texas); Earl J. Finner (Baton Rouge, La.); John W. Moser (Kansas City, Mo.); Eugene J. Candle (Pittsburgh, Pa.); Gerald E. Stackhouse (Buffalo, N. Y.); and Robert W. Swanson (Detroit, Mich.).

The sales engineers will provide design assistance and counsel on the installation and maintenance of instruments and process controls for industry in their areas. They will also handle sales and engineering service for space filters, ventilation equipment, and liquid oxygen converters.

ISOCHEM RESINS CORPORATION has announced the apointment of *Paul D. Jacobs* of Menlo Park as its Resident Sales Engineer in the State of California. Field offices will be maintained at 420

Market Street, San Francisco. Mr. Jacobs has a broad background of sales experience in the plastics and electrical industries. He comes to Isochem Resins from The Northwestern Plastics Company, Chicago, Illinois, where he was engaged in technical sales duties.

Mr. Jacobs will direct the technical sales and service program for the epoxy dip coating resins, epoxy potting compounds, adhesives, and impregnating resins.

The establishment of a District Office in Philadelphia, Pa., has been announced by the Industrial Division of *JOY MFG. COMPANY*, manufacturers of air compressors, dust collectors, fans, and conveyors. *Richard H. Schlobohm* has been appointed as District Manager. The office is located at 1420 Walnut Street. It will serve Joy's Industrial Division customers in portions of Pennsylvania, New Jersey, Maryland, Delaware, Virginia, West Virginia, and the District of Columbia.

THE BLACK & DECKER MFG. CO. announces the opening of a new Factory Service Branch at 227 Varick Street, New York City. Manned by factory trained personnel and equipped with a complete stock of genuine replacement parts for more than 200 different electric tools, the new branch will supplement the service facilities of the company's present Factory Sales and Service Branch at 56–15 Queens Blvd., Woodside. Sales operations of Black & Decker products will continue to be maintained at the Woodside Branch. *Dan E. Calabrese* has been appointed Assistant Branch Service Manager of the company's new Manhattan Branch, which is under the over-all supervision of *Walter Trapp*, New York Branch Service Manager.

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FIRST AID SPRAY *FOR BURNS*

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(Use Key # E-16 on Inquiry Card on page 1)

"Rocky" Marciano, retired heavyweight champion of the world, has become associated with *BIL-JAX, INC.*, as head of a new distributorship in the Miami, Florida area for that firm's line of tubular steel scaffolding and allied equipment. This announcement is made by *Wilbur M. Wyse*, Bil-Jax president, shown with Rocky in the picture.

Bil-Jax equipment that Rocky Marciano Enterprises is making available on the east coast of Florada from Palm Beach south through Miami to the Keys, includes scaffolding, trestles, work platforms, material hoisting towers, passenger ramps, and other airline ground service equipment.

Marciano was one of the most colorful champions in the history of heavyweight boxing, and retired undefeated, after having disposed of such famous fighters as Jersey Joe Wolcott, Ezzard Charles, Joe Louis and many others. He had 49 professional fights, won 43 by knockout and 6 by decision, never having lost a professional bout . . . a feat never before accomplished. He hails originally from Brockton, Mass.

Emmanuel Rosenblat, Sales Manager of *FINE ORGANICS, INC.*, has announced the appointment of *Jim Raney*, R & M Sales Company, 2214 South Clayton Street, Denver, Colorado, as sales agent for the company's line of industrial solvents in Colorado and Wyoming.

The appointment of *Robert A. Shuey, Jr.*, as area sales representative for *HAWKEYE PRODUCTS CORP.* of Syracuse, New York, has been announced by *James A. Bentley*, president of Hawkeye. The company manufactures a line of demountable, portable elevators for construction and maintenance work. Shuey, with headquarters in Dallas, will cover Texas (with the exception of the Gulf Coast area), eastern New Mexico, Louisiana (except the southwest area), and Oklahoma.

HAVEG INDUSTRIES, INC., announces the opening of a new district sales and engineering office in Atlanta, Georgia at 3230 Peachtree Road N. E. *Thomas H. McGrath* of the Cleveland Office will take over as District Sales Manager of the New Atlanta Office, which will service the area with a complete line of corrosion resistant chemical process equipment.

CHAMPION MGF. COMPANY, of St. Louis, manufacturers of construction equipment, moved from 2028 Washington Avenue, to occupy much larger quarters at 3700 Forest Park Boulevard. The new facilities, totaling 30,000 square feet, were acquired as part of Champion's over-all expansion program to keep pace with the building boom throughout the nation.

Harry F. Rose, with more than 27 years experience in the sale and application of Yale hoisting equipment, has been promoted to Manager of Crane and Monorail Sales according to an announcement by *Fred E. Rau*, Hoisting Equipment Sales Manager, *Yale Materials Handling Division, THE YALE & TOWNE MFG. CO.*

In his new position, Rose will coordinate the specification and sale of Yale hoisting equipment nationally to the manufacturers of cranes and monorail handling systems. He will make his headquarters in the Yale Philadelphia plant.

Peter Dewar has been appointed General Manager of *SAFETY SUPPLY Co.*, Toronto. A veteran of thirty-one years in the safety equipment business, Mr. Dewar has held various positions and was formerly Sales Manager. The company is the largest of its kind in Canada. Mr. Dewar is a member of the Ontario Society of Safety Engineers.

Other recent changes are: *George B. Warren*, Edmonton, who has been appointed Western Branch Manager; *Beaton Whiteway* is now Ontario Sales Manager.

THE MORTON SALT CO., has recently announced that *Robert L. Young* will assume the position of Industrial Water Softening Specialist. Mr. Young will work with water softening manufacturers and consulting engineers. Mr. Young was formerly employed by the Clayton Manufacturing Company, serving as Field Engineer and District Manager for them.

THE JOHNSON-MARCH CORP., dust control engineering firm, has moved

its office to 3018 Market St., Philadelphia 4, from its former location at 1724 Chesnut St. The move also includes offices of the firm's two subsidiaries, *Waverly Petroleum Products Co.*, manufacturers of oil and grease absorbents, and *Sani-Mist, Inc.*, manufacturers of products for the prevention of athlete's foot. *Edward F. Frankel*, president of all three firms, said that business growth created the need for more space and larger quarters.

Promotion of *Clarence H. Reinecke* to manager of the Milwaukee district office of the *National Cylinder Gas Division* of *CHEMETRON CORPORATION* is announced by *C. D. McGuinn*, division vice president. He replaces A. L. Breyvogel, who retired Jan. 1 after 18 years with the company. The Milwaukee District office at 606 W. Wisconson Avenue handles sales and service of gases and equipment.

Safety Appointments

Charles L. Jones, of Lindamere, Wilmington, veteran of 46 years' service with Hercules Powder Company and widely known throughout industry for his work as a safety engineer, retired March 31.

In addition to his responsibilities for safety in all Hercules plants, especially those operated by the Cellulose Products and Virginia Cellulose Departments, Mr. Jones has been safety advisor to the protective coatings industry. At the request of companies manufacturing paint, varnish and lacquer, he has carried out annual inspections of a large number of such plants and served as a consultant on plant layout and design.

He is author of two widely distributed books, "Safety in Lacquer Plants," and "Lacquer Plant Design." He holds several patents in the area of safety engineering, and was on the staff of the Newark College of Engineering.

James VanNamee has been named to the newly-created position of division administrator of accident prevention for the Westinghouse lamp division, it was announced recently by John E. Fox, manager of industrial relations. Mr. VanNamee will be responsible for coordinating the accident prevention and Workmen's Compensation activities throughout the manufacturing plants and regional warehouses of the lamp division. He will make his office at the lamp division headquarters in Bloomfield.

A native of Malden, Massachusetts, Mr. VanNamee is a graduate of the Wentworth Institute in Boston. He began his career in accident prevention with the Liberty Mutual Insurance Company in the field of machine-guard design.

After having spent a total of 21 years in engineering capacities with Liberty Mutual, Mr. VanNamee joined the Association of Casualty and Surety Companies, in New York, as the director of the engineering and research division. In that position he was responsible for basic accident prevention research in special and unusual hazards, and for the study of health, fire and explosion hazards.

Dr. Robert J. Bussan has been named Medical Examiner of The Timken Roller Bearing Company for its Canton operations it was announced by Dr. William Wasson, Medical Director. He will assist in Preventive Medical Medicine of the Timken Company's new Medical Dispensary.

Dr. Bussan is a member of the Stark County Medical Society, the American Medical Association, a diplomate of the American Board of Internal Medicine and the National Board of Medical Examiners, and a member of the Phi Chi Medical Fraternity.

George Matwes of Roselle, N. J. has been appointed Safety Director of Bamberger's—New Jersey, it was announced by K. Wade Bennett, senior vice-president and personnel manager.

Mr. Matwes has been associated with the American-Standard Co. and Revlon, Inc., as safety supervisor. During World War 2 he served as area safety engineer with the U. S. Engineering Department in both the Caribbean and Southwestern Divisions. He attended New York University and Rider College.

N. Y. State Safety Director Walter E. Bligh has announced that he has appointed *Roswell L. Pooler* as State Fire Bureau Chief. He assumed his new duties on April 1st, to succeed Chief Charles M. Fales, who retired on that date.

Pooler's new duties will place him directly in charge of the entire State fire training program and its 90 instructors as well as the State's County-wide fire mobilization plans. As Chief of the State Fire Bureau, he automatically becomes Deputy to the State Civil Defense director as Chief of all Fire Service in the State of New York during a statewide emergency.

The new chief came up through the ranks of the Division having started as a field representative when the Division of Safety was first organized under former Director Thomas W. Ryan in May, 1948. After serving as a field representative covering fire activities for the Division of Safety in northern New York for five years, he was promoted to the position of Executive Assistant to Director, acting as liaison between the Division's bureaus of Fire, Police, Home and Industrial Safety, the State Rescue Training School, and other state agencies and the Director.

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(Use Key # E-17 on Inquiry Card on page 11)

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Prevents death and injuries from falling.
If climber starts to fall, device locks in a deep notch on carrier rail and limits fall to approximately 6 inches —distance between notches.

LOCKS AUTOMATICALLY and INSTANTLY—HOLDS SECURELY

Will catch and hold workman if he starts to fall, even if unconscious. Cannot slip on down ladder. Requires no attention from climber; he climbs in normal manner. Inexpensive. Easy to install; 3 men can clamp it to ordinary ladder in few hours. Clamps to any rung ladder, peg ladder, pole or framework. No welding or cutting. Notched rail hot-dipped galvanized. Entire equipment rust and corrosion proof. Can be kept free of ice by applying heat inside the carrier rail. In use approx. 11 years. Approved by Safety Engineers and Government Agencies throughout country. Patented. Manufactured only by

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(Use Key # E-18 on Inquiry Card on page 11)

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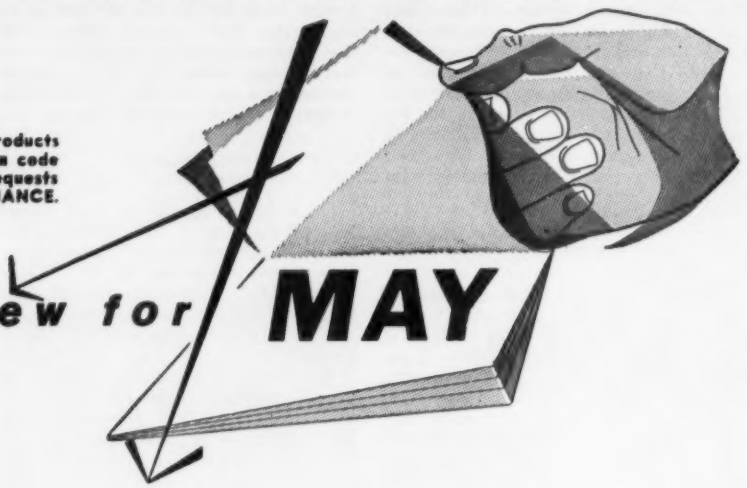

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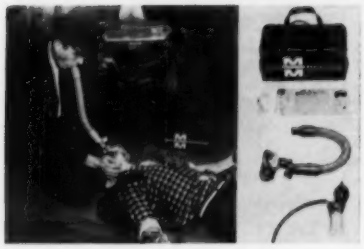


MOUTH TO MASK RESUSCITATOR

(Use Key # 860 on Inquiry Card on page 1)

GLOBE INDUSTRIES, Inc. announces the development of a new "Globe M/M Mouth-to-Mask Resuscitator." The new resuscitator is an extension of the approved mouth-to-mouth technique with all its recognized advantages over manual methods of artificial respiration. It is said to be the easy and natural way to revive the victim of an asphyxial accident. In recent years, studies have revealed that mouth-to-mouth breathing is superior to manual resuscitation methods in assuring ample pulmonary ventilation. The National Academy of Sciences—National Research council has recommended mouth-to-mouth breathing for emergency resuscitation of infants and small children. This recommendation has been accepted by the American National Red Cross, which also specifies the administration of this technique for injured adults. The required intimate contact in mouth-to-mouth resuscitation has made this method sanitarily objectionable for reviving adult victims. Globe's new resuscitator eliminates this objectionable intimate contact.

The unique "Mouth-to-Mask" valve permits passage of air only from rescuer to the victim. The first air which the victim receives in each breathing cycle contains the full oxygen content (21%) of surrounding air. At no time is the patient's breath inhaled by the operator. Use of the "M/M Resuscitator" places rescuer at patient's head and sufficiently far enough away to monitor chest movement and color of lip without interrupting rhythm of breathing. A rebreathing system prevents hyperventilation and permits continuous use for long periods of time. The oronasal face mask assures a tight seal, thus giving all benefits of both mouth-to-mouth and mouth-to-nose resuscitation. This equipment for "manual" resuscitation weighs only 2 pounds.

NEW VISUAL AID ACCESSORY

(Use Key # 829 on Inquiry Card on page 1)

A NEW BLACK flannelboard visual aid accessory designed for use with the "Arlington 5-Way Presentation Easel" has been introduced by Arlington Aluminum Co. The new accessory makes flannelboard presentations possible (also called slap board or felt board). Flannelboard presentations are used in training conferences, safety programs, presentations and sales meetings, etc.

Props for the flannelboard are simple, easy-to-prepare and give a three-dimensional effect. Newspaper clippings, photographs, cut-outs of cloth or construction paper, pamphlets and individual letters, numerals or words may be used. Pieces of sandpaper are glued to the backs of the props. The fibrous nap on the flannel has microscopic hooks that cause the sandpaper to adhere.

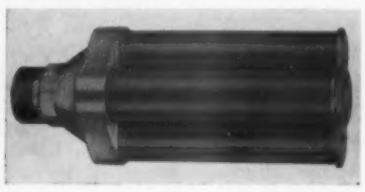
The Arlington flannelboard accessory is constructed of 12-ounce, woven black flannel, hemmed-edges, and aluminum reinforcing at the top, 28½" x 38½" and lies flat on the easel.

SPARK ARRESTORS FEATURE INCREASED CAPACITY

(Use Key # 830 on Inquiry Card on page 1)

TWO LARGER-size spark arrestors for heavy-duty gas and diesel engines have been developed by Erickson Products Co. They are designed for use on exhaust pipes of approximately three-, and also three-and-one-half inches in diameter, and find their application on large crawler tractors, earth-moving equipment, refueling trucks, tugs, large general-service trucks, ground power engines and other equipment working in areas where exhaust sparks are dangerous.

By perfecting these two larger-size "Gill Spark Arrestors," the manufacturer now offers a complete range of sizes for all engines from 150 cubic-inch engine displacement, and up. By using a straight-through exhaust-flow principle and cyclonic action, the manufacturer claims almost 100% efficiency in trapping incandescent exhaust carbon. These arrestors can be mounted at the end of, or within the exhaust system horizontally, vertically, inverted or at any angle.



NEW CHEMICAL GOGGLE AND SAFETY SPECTACLE

(Use Key # 831 on Inquiry Card on page 1)

A NEW YELLOW framed chemical goggle that combines easy color identification, maximum air circulation and increased splash protection has been introduced by the Glendale Optical Co. By coloring the vinyl frame of its Glensite "Softie" Chemical Goggle, the company has provided a safety goggle that is readily identifiable as to the type of operation in which it is to be used. The color conforms to the American Standards Association Color Code for acid operations.

Six splash-proof vents composed of aluminum heads over fine mesh screen provide air circulation and prevent fogging. A self-adjusting, flexible vinyl noseguard seals off the vulnerable areas around the nose and under the goggles. The "Softie" has a wide angle lens of clear .050 acid resistant plastic which conforms to Federal specifications for impact and pierce resistance while permitting maximum side vision. The new goggle also features an acid resistant, neoprene rubber headband.

A new "Tutone"-frame safety spectacle has also been introduced to meet the needs of plant management, personnel, visitors and others not directly engaged in activities requiring heavier eye protection. The new safety spectacle has a two-tone frame of cellulose acetate butyrate and features a universal bridge which will fit more than 90 percent of all users.

Interchangeable S7 lenses of #150 "Glenrock" hardened glass are pierce and impact resistant. Seven barrel hinges eliminate temple rocking. Adjustable wire core spatula temples, ranging from 5½ to 7 inches, provide added comfort. Available in eye sizes 44, 46 and 48 in the 7200 series, clear lens, or the F7200 series, with light, medium or dark green lenses for ultraviolet and infrared protection.

NEW INDUSTRIAL EYEWEAR CASE

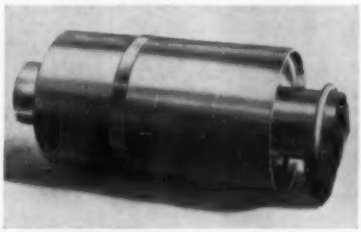
(Use Key # 832 on Inquiry Card on page 1)

BAUSCH & LOMB Optical Co. has designed a new open end case for industrial eyewear which provides necessary protection, yet is flexible and compact for carrying ease. The new case (Model 5-37-97) is made of durable pig grain vinyl which is stain resistant and easily washable. A soft, urethane padding has been heat sealed between outer covering and flocked vinyl lining to absorb shock. Case edges have been sealed and stitched with heavy nylon thread to prevent ripping or tearing. A soft, smooth lining assures that lenses will be protected against scratching. Streamlined in design, the case weighs less than two ounces.

CARBON REMOVER AND SOLVENT TANK DEGREASER

(Use Key # 833 on Inquiry Card on page 1)

FINE ORGANICS, INC. has developed F.O.-286, a new carbon remover and solvent tank degreaser. The compound is a nonflammable solvent degreasing liquid which removes carbon, oxidized oil, tar, paint, stains, rubber and petroleum residues from aircraft and automotive metals and metal parts. It is designed for cold tank use because of its effective penetrating and solvent action. Specifically designed to break the adhesive bond between soil deposits and metals and to wet out and hold dirt and soil in suspension, it softens and strips paint from the soiled parts. Non-corrosive to commonly used aircraft and automotive metals, it will not corrode aluminum, aluminum alloys or magnesium. It can be used for many cleaning cycles since little, if any, solvent is lost and dirt settles to the bottom of the tank. Available in 5 and 55 gallon steel drums.



NEW MUFFLER SAVES SPACE

(Use Key # 834 on Inquiry Card on page 1)

A RECENTLY developed intake or exhaust muffler, reported to feature space-savings of up to several hundred percent over conventional mufflers, is now available from Allied Witan Co., Inc. The new "Radial Multi-pass Atomuffler" achieves maximum compactness by use of a directional vane which channels exhaust air into four silencing chambers. According to the manufacturer, the muffler effectively silences steam and air-operated devices, pumps, blowers, etc., with 3" to 6" N.P.T. exhaust port openings.

Using four noise silencing chambers instead of just one, gives the new unit an extremely large exhaust surface (60 times greater than the area of the exhaust port opening). For example, a 4" muffler has an expansion area of 1215 square inches and an escape area of 650 square inches. As a result, air exhaust is dispersed over an immense area with maximum noise silencing efficiency regardless of degree of air line pressure or volume of air being exhausted.

Within each silencing chamber, the "Radial Multi-pass Atomuffler" uses the principle of equal and opposite cancelling forces to silence noise. As streams of exhaust air enter the silencing chambers they are broken up. The resultant jets of air are reflected into opposing forces. Collision of these focused forces cancels the energy of the air before it can become irritating noise. A highly porous disseminator diffuses the lowered-velocity exhaust air into the atmosphere.

COPPER TAPE DRAINS STATIC-ELECTRICITY

(Use Key # 835 on Inquiry Card on page 1)

ONE OF the hazards in locations where explosive atmospheres may be present is the build up of static electricity caused by walking across floors of asphalt tile and similiar materials. To eliminate this static electricity, the Somers Brass Company, Inc. has made available a pure copper conductor tape.

The tape is laid in strips along the joints between the tiles, when they are laid, from one edge of the floor to the other and is then connected to a ground so that all static electricity is drained off before it can build up. The tape is called "thin strip." It is only .003" thick and does not interfere with the smoothness of the floor.

MODERNIZED FIRE ALARM

(Use Key # 836 on Inquiry Card on page 1)

NOTIFIER'S latest model, Underwriters' listed manual break-glass fire-alarm station, Model BG-1 is designed for installation as part of either a manual or an automatic fire detection system. Pulling down its lid causes key latch to break glass and release a switch to activate the alarm. Cannot be activated by accidental bumping. Modern design eliminates need for unsightly hammers or complicated glass-breaking mechanisms. Resetting simply means putting in a new retainer.

A patented lock mechanism allows periodic tests by authorized personnel without the necessity of glass replacement. Suitable for use in custodial institutions, because the glass retainer can be replaced with a metal slug and only attendants with master keys can turn in alarms.

A weatherproof model, BG-1W, for outdoor use, is available at small additional cost. Pre-signal models are available for use in buildings where a general alarm might cause panic. Designed and manufactured by the Notifier Corporation.

IMPROVED FACE MASK

(Use Key # 837 on Inquiry Card on page 1)

A NEW MASK is announced by Acme Protection Equipment Co. This mask, with four special features, is especially useful in fumigation work. The back mounting of the canister assures that its inlet is in the least contaminated air surrounding the operator. The canister pouch is provided with adjustments to enable 1,000 cc or 2,000 cc canisters to be used. In case the operator uses different canisters for various gases or desires to connect quickly fresh canisters, the quick change feature, using threaded canister necks, is especially useful. Quick change connection is also available at the facepiece so chin style canisters may be used. The mask is U. S. Bureau of Mines approved with "Acme" chest style 1,000 cc organic vapor canisters.

NEW FIRE EXTINGUISHER

(Use Key # 838 on Inquiry Card on page 1)

FYR-FYTER and Buffalo fire equipment sales outlets are introducing a new, "2½"-lb. Pressurized Dry Chemical" multi-purpose industrial fire extinguisher. The new fire killer is being marketed in two "Safety Twin" models. Styled exactly alike—and patterned after widely-used larger (5 to 30-lb. capacity) industrial dry chemical extinguishers—one "Twin" is finished in chrome plate; the other features a vermilion red finish. Both Factory Mutual and Underwriters' Laboratories approved, the light-weight, extinguisher is designed so that it can be used with ease and effectiveness by both male and female employees. Special features include a new "grip fit" handle. No inverting or pumping is necessary.

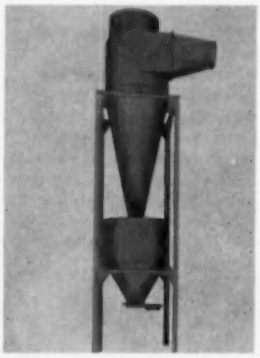
The extinguisher is charged with Formula H, an improved, newly patented dry chemical extinguishing agent. Highly resistant to moisture, heat and compaction, Formula H will flow freely and perform under all conditions. One squeeze of the handle releases the powder in a wide-angle, flat dense pattern. Formula H powder contains no dangerous chemicals, produces no toxic fumes and is a non-conductor of electricity.

Extinguisher has an operational range of from 10 to 12 feet. Operator can snuff out a fire while maintaining a safe distance from the blaze. Pressure gauge—positioned directly in front of the "grip fit" handle—permits frequent visual inspection of the extinguisher's operational readiness. After use, the extinguisher can be inexpensively refilled and repressurized. Both "Twins" carry a "4-B, C" UL rating. Suitable also for trucks, passenger cars, boats, trailers, garages, etc.

HIGH EFFICIENCY DUST COLLECTOR

(Use Key # 839 on Inquiry Card on page 1)

LARGEST of a series of cyclone separators being introduced by Torit Manufacturing Company is the Model 36, a cyclone which operates in the 4,000 to 6,000-plus CFM range. The new model features adjustable belt drive to give a wide range of CFM performances against varying resistances. Its long tapering cone design and high inlet velocity place it in the "high efficiency" cyclone separator classification. In laboratory tests, it has separated 99.2% of steel grindings, 99% of sawdust and 94% of flour by weight, the company reports.



In the Model 36, the blower is mounted either on the clean air side of the collector or remotely to prevent fan damage from bulky dust, chips, wood blocks, tramp iron or other foreign substances. These are deposited in the collector base, before air reaches the blower. If the blower is located remotely, it can be used for either blow-through or pull-through operations. The unit is designed for outdoor exhaust. The new model has 14-inch inlets and outlets. The standard base has 30 cubic feet storage capacity for dust, emptied through an airtight slide gate. The separator occupies 44 x 70½ inches of floor space and measures 13 feet, 9⅜ inches from hopper outlet to top. A protective weather cap and weather-resistant finish are available for outside installations.

NEW PAVING COMPOUND

(Use Key # 840 on Inquiry Card on page 1)

A NEW, ECONOMICAL coal tar pitch emulsion which is easy to apply is now available to companies who sponsor asphalt-paved parking areas for employees. The paving compound is called "Flintar," one of the most effective coatings yet devised for sealcoat protection of asphalt surfaces, claims the manufacturer, the Flintkote Co., Inc.

"Flintar" not only protects against the elements of man, machine and weather, but also enhances the appearance of the surface by giving it a durable satin black uniform color. According to the manufacturer, it will save many, many dollars because it spreads farther, lasts longer, seals tighter and looks better. It points out, too, that the U. S. Army, U. S. Navy and U. S. Air Force use this type of product regularly on its asphalt-paved airfields, roads, parking lots and garage areas. To be sealcoated a pavement must be cleaned of all dirt, dust, loose stone and grease. Brooming and flushing with a hose will remove embedded dirt. The pavement should then be well dampened when "Flintar," which has been stirred to homogeneous consistency, is applied. It is then poured on to the surface and brushed into the pores of the pavement. Excess material is pulled ahead by means of the brush or squeegee. Traffic is restricted until thoroughly dry. The coating is resistant to petroleum products which soften asphalt. It bonds firmly to clean, properly cured asphalt surfaces—new or old—forming a continuous, non-cracking impervious film.

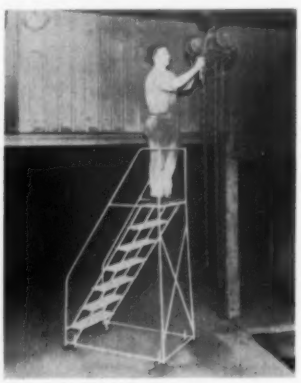
SAFETY LADDERS

(Use Key # 841 on Inquiry Card on page 1)

"TROUBLE-SAVER" safety ladders, from The Patent Scaffolding Co., Inc. combine the safety and strength of steel construction with efficiency of a rolling unit. These new ladders save time, labor and effort in fixed height work in a wide range of applications, the company reports.

The ladders are made in 20" and 30" widths in a complete range of sizes, from one to five steps without handrails and from two to 12 steps with handrails. Design features include: all-welded construction, smooth rolling casters which lock when user steps on ladder, flared base for greater stability, extra braces on taller ladders, expanded metal treads of improved design, and curved front rails on units without guard rails, making ladders easier to grasp for rolling. The latter is an exclusive feature of "Trouble Saver" ladders.

The new ladders are finished with a synthetic aluminum enamel. This coating forms a solid metallic barrier and dries to a hard, tough abrasion-resistant surface with superior rust-resistant properties.



NEW SAFETY GLASSES

(Use Key # 842 on Inquiry Card on page 1)

"DUO-TONE" is the name given its new "double duty" line of plastic frame safety glasses by the Sellstrom Mfg. Co. That firm claims outstanding styling and safety are twin features of the line, which carries a "Series 711" designation. According to the manufacturer, "Duo-Tones" are offered in two types of temples. The new broad spatula style, said to be otherwise available only in the most expensive personal glasses, affords greater safety in addition to its smart on-the-street appearance; being broader, its surface holds more firmly to the side of the face. The cable style has a permanent vinyl coating that adds flexibility without sacrificing strength; bonded securely to the metal cable cores, it eliminates completely the possibility of any peeling or discoloration.

The new line also provides the standard S-7 square lens shape, allowing interchangeability with present safety glasses. Both Rx prescription and plano lenses are offered. Carrying on the "Duo-Tone" theme, frames are a pleasing combination of ebony and clear plastic.

NEW FIRE RETARDANT PAINT

(Use Key # 843 on Inquiry Card on page 1)

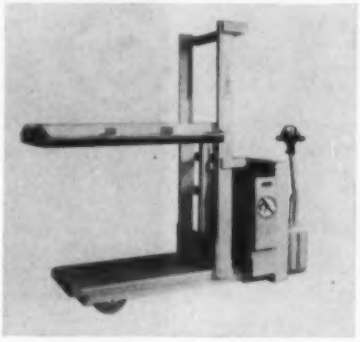
FIRE RETARDANT paint, "the ounce of prevention" that will aid materially in minimizing damage and loss of life, has been developed in Du Pont laboratories and is now being made available throughout the country. Approved by the Underwriters' Laboratories, the new interior flat enamel does not stop fires but slows down the spreading rate. The material is described as different from the type that foams and forms a spongy insulating layer when subjected to heat. Five years of research went into its creation. Available in seven colors and white, the material is recommended at three coats for optimum results. It can be applied by brush, roller or spray gun and renders the highest degree of protection on new or unpainted surfaces.

The Underwriters' Laboratories tests evaluate the fire hazard involved in flame spread, fuel contributed, and smoke developed which is cause of suffocation and a serious obstacle in fire fighting. Douglas fir wood decking was given three coats and placed in specially designed oven and exposed to direct flame. Unpainted red oak is given a rating of 100 and asbestos cement board classified at zero. To qualify as fire retardant, a coating must reduce flame spread to 70 or less. Du Pont fire retardant paint rated at 50 to 70 in the Underwriters' tests. In the "fuel contributed" test the material earned a highly satisfactory 25 to 35. The "smoke developed" test was rated at 5 to 45. The material has also passed the U. S. Navy thermoelectric tests proving its ability to hinder the spread of flame on fireproof or fire resistant walls and barriers due to heat generated by fire on the opposite side of a wall or partition.

LOAD STABILIZER ATTACHMENT

(Use Key # 844 on Inquiry Card on page 1)

LOAD STABILIZER attachment adapted for use with its low-lift "walkie" line has been developed by Lewis-Shepard Products, Inc. Designed originally for handling skid loads of coated flat paper stock, which have a tendency to ride off skids and pallets, the stabilizer is also recommended for all types of loads that are not stable.



The stabilizer is hydraulically operated from the operating handle and clamps down on top of the load. Various clamping heights may be furnished to suit the height of the load by the adjustable top clamp arm. Sponge lined pads clamp safely down on any material and hold firmly in place while the load is transported. This feature is extremely practical when travelling over slanted ramps.

NEOPRENE INCREASES GLOVE LIFE

(Use Key # 845 on Inquiry Card on page 1)

AN IMPROVED neoprene coating, reinforced with special additives, is reported to give "Neox" work gloves much greater resistance to industrial solvents. It is also more flexible and made in a new hand-fitting pattern, with wing thumb and curved, pre-flexed fingers, for maximum comfort and dexterity. This improved coating compound provides protection against a wide variety of hazards, including cutting, abrasion, heat, solvents, acids, alcohols and caustics. Available in palm coated knitwrist and 7 coated, liquid-proof styles, including knitwrist and 10", 12", 14" and 31" gauntlets. From the Edmont Mfg. Co.

VERBAL WARNING ALARM

(Use Key # 846 on Inquiry Card on page 1)

ELECTRONIC Secretary Industries, Inc. has introduced a new unit capable of delivering a verbal warning over a telephone system in response to the operation of any primary hazard detecting device. Known as the electronic "Sentry," this device is designed to provide an instant, automatic alert to designated personnel when property damage or loss is threatened by fire, pressure, water levels, temperature, theft or other hazardous conditions. When an alert condition occurs, any primary detecting device—a thermostat, fusible link, photo-cell unit, pressure control, water-level control or any detection device capable of providing circuit closure—causes the unit to go into action. Once activated, it goes through a four-step performance cycle as follows:

1. With the primary detection circuit closure, the "Sentry" is connected across the telephone line. Its record player starts, and plays out a tone signal which causes the unit to seize the line.

2. During a predetermined interval the central office equipment readies itself to receive the called number. It then proceeds electronically to dial a preset telephone number.

3. After dialing, the "Sentry" waits a few seconds to give the called party an opportunity to answer. If the line happens to be busy, it keeps on trying until it gets through.

4. The unit then delivers the verbal, prerecorded message telling the called party the nature of the emergency. It will repeat the cycle until the hazardous condition is corrected or the called party arrives and disconnects the "Sentry."

Available from the Automatic Electric Sales Corp.

NON-SLIP FLOOR COATING

(Use Key # 847 on Inquiry Card on page 1)

THE MONROE Company, Inc. has announced improvements in its "Skid-Not Plastic Floor Finish" to enable floors to stay beautiful and safe 3 to 4 times longer. Approved by Underwriters Laboratories, it now offers: 1) Instant gloss without polishing . . . 2) Lasts three to four times longer than wax . . . 3) Will not discolor or water-spot . . . 4) Is non-slip . . . 5) Resists bacteria . . . 6) Easy to apply with an ordinary mop . . . 7) Heavy traffic areas can be touched-up without re-doing the entire floor . . . 8) Easy to clean . . . 9) Does not scuff, rubber-burn or show foot marks . . . 10) Protects varnished, painted or enameled floors, linoleum, rubber, cork, asphalt tile, terrazzo, magnesite or sealed wood floors.

PLASTIC EYE SHIELD

(Use Key # 848 on Inquiry Card on page 1)

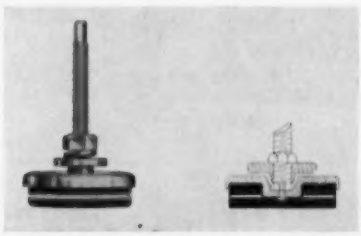
FOR eye insurance, Kerrco Products announces their "E-Z-Fit" Eye Shields. The shield is of all-plastic molded construction to comfortably fit the contour of the face and has been designed to be worn with or without prescription glasses. The shield is held on by an adjustable elastic band with ventilating holes on the side of the shield to give greater wearing ease and positive protection with all angle viewing.

The manufacturer further states that the "E-Z-Fit" shield has been established as a "must" in many industrial plants and is also widely used by farmers and sportsmen and wherever eye protection is desired. Available with crystal clear or green tinted lenses.

NEW LIGHT-DUTY MACHINERY MOUNT

(Use Key # 849 on Inquiry Card on page 1)

A NEW LIGHT-duty levelling type machinery mount has been developed by the Unisorb Div. of The Felters Co. for speeding and simplifying the installation of light and medium-duty machinery in plants and offices. Called the "Unisorb Level-Rite" 200 Series, it is designed for individual loadings up to 200 lbs., psi. It features a Type H vibration control pad held in a steel housing, which supports a levelling post and lug. Machines are installed and levelled by inserting the levelling post under a leg or bearing point, rotating the screw post from the top or bottom, and securing a locking nut. The screw post is free floating to compensate for uneven or pitched floors.

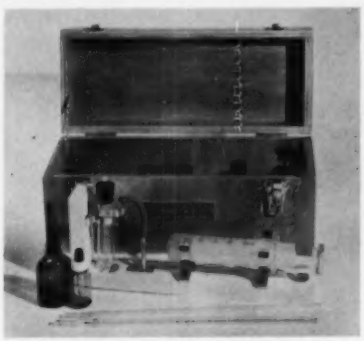


The "Unisorb Pad" absorbs up to 85% of the transmitted vibration, reduces noise level and holds machinery securely in place. In addition, the pad eliminates the need for destructive screws and lag bolts and when used on tile floors, the "Level-Rite" spreads the loading and eliminates "denting." Creeping or walking is prevented by a high coefficient of friction.

AIR TESTING KIT

(Use Key # 850 on Inquiry Card on page 1)

A NEW COMPACT air sampling kit, called "Compact Test Kit," manufactured by the Compact Air Samplers, Inc., is an inexpensive, air sampling device that can be used with standard laboratory reagents to effect an accurate air sample for "on-the-spot" measurement of such gases as hydrogen sulfide, hydrogen cyanide, ammonia, sulfur dioxide, chlorine as well as airborne dusts, etc. The new kit has been tried and proven in countless industrial hygiene studies, safety inspections, and stack sampling investigations to be a simple, rapid sampling device for obtaining reliable data, the company reports.

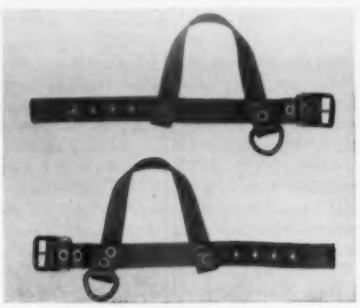


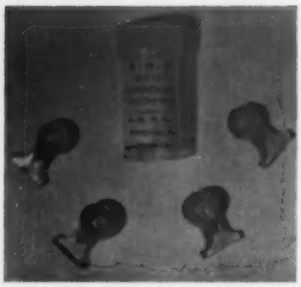
The new kit uses no costly prepared tubes. A single glass scrubber and the use of selected laboratory reagents along with a calibrated syringe with a specially fabricated valve for finger tip control furnishes accurate measurement of air volume. The "Compact Test Kit" can be used for collecting vapors of many aromatic hydrocarbons for U. V. analysis, dusts for chemical analysis and as a grab sampler for stack emissions.

NYLON WRIST BANDS FOR PULL-BACK PUNCH PRESS GUARDS

(Use Key # 851 on Inquiry Card on page 1)

NYLON WRIST bands for users of "Possons" pull-back safety devices have been developed by The Positive Safety Mfg. Co. The flexible nylon webbing is said to provide more comfort for operators. Strength is also improved. Tests indicate its usable life to be longer than leather. The bands may be cleaned with soap and water or solvents. They may be used with the pull-back hand guards on punch and toggle presses, embossers, press brakes, drop hammers and other special machines.





NEW NOISE CONTROLLERS

(Use Key # 852 on Inquiry Card on page 1)

OVER FIFTEEN years of research, design, development and actual usage in industry precede the announcement of the new "S-O-S® Noise Controller." As the name S-O-S® (shut out shock) implies, these devices enable the user to hear all normal conversations. They help eliminate fatigue, etc. so often brought about by unwanted and shock noises.

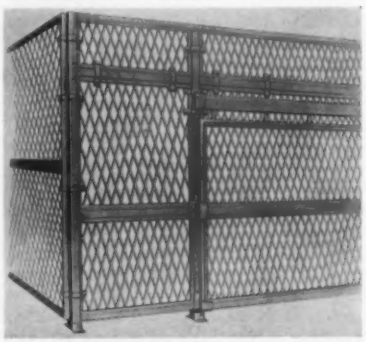
"S-O-S Noise Controllers" do not enter the ear canal where the insertion of foreign objects frequently causes irritation and possible infection. They are sanitary and being made of polystyrene, are easily cleansed with soap and water. They are comfortable to use. A quick twist inserts or removes them. Units are offered in three sizes from M-M-A, Inc.

EXPANDED METAL PARTITIONING

(Use Key # 853 on Inquiry Card on page 1)

THE PRODUCTS Division of The Globe Co. recently acquired the Hilmar Co., Inc., manufacturers of expanded metal partitions and panels for all enclosure problems. The new name for the product is Globe "Safe-Gard" expanded metal partitions and will be featured with the exclusive "Quik-Erect" patented fittings.

It provides an easier method of guarding conveyors and machines and for all in-plant partitioning. "Safe-Gard" is shipped ready for erection, with no cutting, drilling or welding required. These interchangeable expanded metal panels



are said to provide greater safety, cut over-all costs, cover a wider range of use and require 85% less storage space. The section fitting clips save much of the erection time formerly required. These panels are of welded construction, give longer life, are more rigid and stronger than wire and will not ravel or fray.

PORTABLE VACUUM-BLOWER UNIT

(Use Key # 854 on Inquiry Card on page 1)

BIG VACUUM performance in a small, compact, one-hand portable machine is offered by the "Stubby," a new multi-purpose vacuum introduced by the Empire Chemical Products Co., Machine Division. The new unit weighs 25 lbs., and is 21" high by 16" wide. Powered by a ½ hp motor, operable AC or DC, and equipped with multi-stage turbine type fans, it gives a 70" vacuum pick-up, wet or dry. Moreover, it is fitted for changeover to blower action.

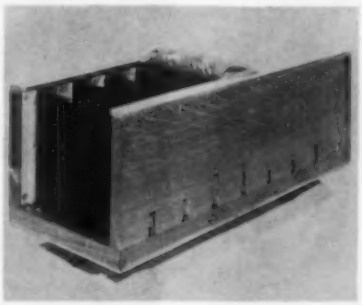
Tank capacity of the Empire "Stubby" is about a half-bushel of dirt or 4 gals of water, and for convenience in dirt disposal the machine is used with disposable paper bags. A one-hand carrying handle provides easy portability, and its small size makes the machine easy to store out of sight when not in use, and to take from job to job in car trunk or truck. The unit is ruggedly built of heavy gauge steel to take abuse. The machine has a blue hammertone tank and all-chrome and mirror-finished fixtures.

The Empire "Stubby" recommends itself for plant and office maintenance, motels and hotels, car laundries and service shops, and should prove of special interest to the heating and air conditioning contractor. It is entirely suitable for heating plant cleaning.

NEW BOTTLE CARRIER

(Use Key # 855 on Inquiry Card on page 1)

THE GENERAL Scientific Equipment Co. has announced a new safety bottle carrier for safe, practical handling of chemicals in glass containers. A thick-walled polyethylene container the "Bottle Carrier" has safety features designed into it. For ease in handling, the unit has a heavy wire handle sealed in plastisol and secured to integrally molded-on ears. The bottle, held firmly in place with a snap cover, is cushioned from shocks and breakage



INDUSTRIAL SHOE CLEANING UNIT

(Use Key # 856 on Inquiry Card on page 1)

AN INDUSTRIAL shoe cleaning unit, a novel product for removing lint and dirt from all parts of the shoe has been developed by the Industrial Division of Stanley Home Products, Inc. The unit is simple in design, consisting of a wood box with a network of nylon strip brushes assembled in a manner that brushes every part of the shoe. These brush strips are anchored by magnesium holding channels that allow the brushes to be easily replaced. The unit is open at one end where the shoe is entered and closed at the back end where a vacuum attachment is located for removal of loose dirt. A size 14 shoe can be thrust into this unit and also a woman's shoe without removing the shoe or readjustment.

The nylon for the instep and sole of the shoe is extra stiff. Medium stiff nylon is used on the lower half of the vertical strips for cleaning the crevice where shoe and sole are united. Extra soft nylon is used on the upper half of the vertical strips to dust the upper part of the shoe and also to eliminate any possibility of tearing stockings. Finally, one soft type brush is suspended from the cover to aid in the cleaning of the shoe top and also the laces. This unit, at the present time, is being used at entrances to special rooms where the removal of lint and dirt from the shoe is of the utmost importance.

ASBESTOS SAFETY CLOTH

(Use Key # 857 on Inquiry Card on page 1)

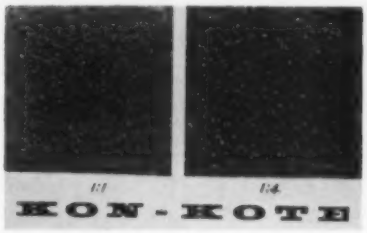
DEVELOPMENT of a new lint-free, non-fraying asbestos safety cloth, which has great abrasion resistance, has been announced by the Union Asbestos and Rubber Co. These advantages, says the manufacturer, have been added to its new asbestos fabric in addition to maintaining the same insulation characteristics of plain asbestos cloth. The new fabric does not unravel along cut edges and can be tailored to fit any pattern. This feature and its lint-free characteristics make it suitable for safety clothing, fire curtains and fire blankets, etc.

The new cloth is available in standard widths of 36" and 40", but can be furnished in widths of up to 60". Fire curtains and blankets made of the new cloth are fabricated to customer specifications. Weight of the cloth ranges from approximately 2.25 to 2.5 pounds per square yard. Currently available in an "off-white" color.

NEW NON-SKID COATING

(Use Key # 858 on Inquiry Card on page 1)

A NEW STRUCTURAL coating providing high impact strength, safety, corrosion resistance and a maintenance free surface has been formulated for industrial use by

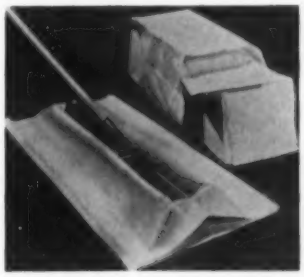


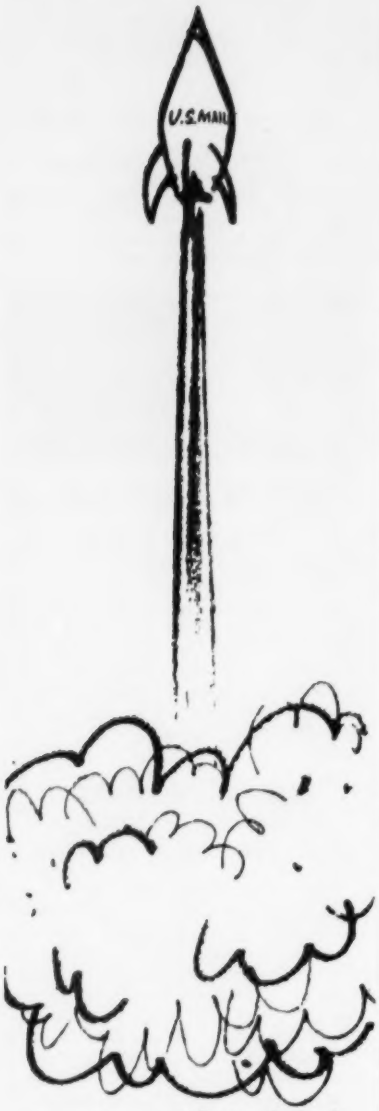
the Grant Chemical Co. Designed for areas subjected to hard usage such as ramps for steel drums or steel wheeled dollies, floors requiring high-impact resistance, and walkways where non-skid surfaces are necessary, "Kon-Kote" is available in two slightly different formulations. #1 offers resistance to corrosion producing chemicals such as most acids, alkalis and solvents. #2 offers impact strength.

DISPOSABLE DUSTLESS CLEANING CLOTHS

(Use Key # 859 on Inquiry Card on page 1)

FOR MORE EFFICIENT, time saving, dustless sweeping, the chemically treated, disposable "Masslinn Cloths" are now available in a new industrial package, according to the manufacturers, Chicopee Mills Inc. The development of the Masslinn sweeping tool and dust-absorbing cloth which enables easy dustless cleaning without oiling, dampening or chemical sprays was recently reported. The manufacturer states that the disposable cloth is a non-woven fabric impregnated with a special emulsion which absorbs and retains dust and dirt, leaving cleaned floors with a polished finish, without any slip hazard. The non-linting cloth is said to give complete assurance against leaving of deposits, threads, fall-out or back-tracking.





zone mail indeed results in speed

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

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SEND THIS PERSONAL SAFETY MESSAGE TO EVERY ONE OF YOUR EMPLOYEES.

- Safety is made appealing . . . vivid . . . engaging . . . colorful!
- Each worker clearly sees how safety benefits him . . . how doing his part helps others!
- You get enthusiastic safety cooperation instead of tolerance . . . from every employee . . . every month!

. . . talks the worker's language!

YOUR IMPRINT HERE!

packed with pictures, alive with animated cartoons, touched with humour that gives snap to your message, it makes safety interesting and down to earth. Twelve times a year it covers accident hazards. Across the nation leading industrial firms state it's the only safety paper their employees will read . . . and take home to their families.

It gives the employer the advantages of personal contact . . . saves time and expense. One "lost time" accident prevented . . . more than pays for the yearly cost! Try it . . . it works!

YOUR SIGNATURE HERE!

Make Your Safety News your own publication . . . your good will ambassador . . . working for you toward better industrial relations. If you wish, your facsimile signature can be printed here to identify you with the message that gets next to your men and boosts morale.

NOTE: *Your Safety News* is designed to promote better employer-employee relations. Every item is carefully weighed and tailored to this viewpoint!

INSIDE PAGES
(Pages 2 and 3)

THOUGHTLESSNESS IS A THIEF
He'll steal his way into what you're doing, distract your attention and walk off with a finger, arm, eye or foot. Thoughtlessness takes many forms: it may be daydreaming, or worry about some personal problem, or just plain inattention. Anything that distracts you, especially around machinery, is a thief of your personal safety.
PLAYFULNESS IS A PIRATE
He is a dangerous rascal. His hi-jinks may put him in the spotlight, but his practical jokes and showing-off often result in serious bodily injury and even death. And note this: he, himself, has lost a leg! As so often happens, horseplay can boomerang and the practical joker gets hurt too!
What You Should Know About Carbon Monoxide
This is a picture of carbon monoxide gas!
That's right, you can't see it. It's odorless, non-irritating, tasteless, practically odorless, but also deadly.
Here are the symptoms of carbon monoxide poisoning: First, a tight feeling across the forehead, followed by headache, throbbing temples, weariness, weakness, dizziness, nausea, loss of muscular control, increased pulse and breathing. Buff if the concentration of the poison gas is high, there may be loss of consciousness without these warning signals.
Just a few breaths of air containing 1% carbon monoxide can be fatal . . . as can one part of carbon monoxide in a thousand parts of air when breathed for 90 minutes.
It is possible for carbon monoxide to leak inside of a car if there is a loose exhaust pipe or manifold connection, blown-out exhaust gasket, cracked exhaust manifold, or leaky muffler. Play it safe:
1. Be sure your muffler and exhaust are in good condition (they can leak long before they become noisy).
2. Always keep a car window open, even a little, for fresh air.
AN INTIMATE LOOK AT FOUR VILLAINS
SAFETY LAZINESS IS A SIMON LEGREE
If you are lazy about safety rules, then accidents will have the whip hand. We are safety-lazy when we don't bother to use mechanical guards, to take time to get the right tools for the job, to wear protective equipment such as goggles, hard hats, safety shoes, respirators, gloves, etc. Yes, Simon Legree has a whole pack of accident hounds to trail you.
HAZARDOUS METHODS ARE A HOLD-UP MAN
This villain, unsafe work habits, likes to lie in ambush for the unwary. But how do we fall into bad working habits? It may be by trying to cut corners, by wanting to keep to the old way of doing things, or by over-confidence. It's hard for anyone to believe that an accident can happen to him. It's easier to make excuses to ourselves for ignoring safety rules, but alike: only lead us up a blind alley with an accident waiting in ambush.
Two Excellent Reasons
For Wearing Safety Shoes

EMPHASIZES SELF INTEREST

Your employee's self interest in his own safety is always emphasized. Constant safety consciousness is promoted by covering household hazards, transit to and from the job and on the job caution against accidents.

CLEVERLY ILLUSTRATES THE POINT

Artwork is carefully chosen to lodge home each point persuasively. The cartoon style makes YOUR SAFETY NEWS as familiar and welcome as the picture packed Sunday supplement.

WINS READERS WITH A FOLKSY APPROACH

Keeping the contents folksy, adding the light note of humor, gets your message across with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of indifference.

RIVETS ATTENTION WITH VIVID COLOR

Generous use of color sparks the message, and adds impact to the contents of YOUR SAFETY NEWS. Each issue is as alive as any news-stand favorite.

HOW TO ORDER:

YOUR SAFETY NEWS may be ordered with either the standard imprint or with your Own Special Imprint. The standard imprint reads "PLEASE COOPERATE FOR THE SAFETY AND HEALTH OF ALL . . . signed . . . A SAFE WORKER."

You can personalize YOUR SAFETY NEWS with the name of your firm and the name or facsimile signature of a company representative as illustrated. Give full instructions for your Special Imprint on the order blank below:

Item (1) FIRM NAME: Please show the name of your firm exactly as it is to appear.

Item (2) INDIVIDUAL NAME OR SIGNATURE: (If Desired). On a sheet of white paper, please show, in black ink, the individual name or signature, if desired, which is to appear each month on the first page of YOUR SAFETY NEWS.

NOTE: Although a personal signature is effective, some firms substitute: SAFETY DEPARTMENT, YOUR SAFETY COMMITTEE, A SAFE WORKER, etc.

CUT OUT AND MAIL TODAY!

ALFRED M. BEST COMPANY, Inc. • 75 Fulton Street, New York 38, N. Y.

Gentlemen:

Until further advised please publish for us each month _____ copies of YOUR SAFETY NEWS at _____¢ each.

☐ Special Imprint ☐ Standard Imprint

Item (1) The Special Imprint of our company name should appear as follows: _____

Item (2) (If Desired). Please imprint the name or signature shown on the attached sheet of white paper or the following: _____

INVOICE TO:

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Firm Name _____

Address _____

City _____ Zone _____ State _____

PRICES

No. Copies Per Month	Your Special Imprint	Standard Imprint	No. Copies Per Month	Your Special Imprint	Standard Imprint
6,001 copies and over	2½¢ each	2¢ each	200 to 500 copies	5½¢ each	4½¢ each
3,001 to 6,000 copies	3¢ each	2½¢ each	100 to 199 copies	6½¢ each	5¢ each
1,001 to 3,000 copies	3½¢ each	3¢ each	25 to 99 copies	**	5½¢ each
501 to 1,000 copies	4½¢ each	4¢ each			

** 5½ each plus $3.50 per month. For Special Imprint. F.O.B. New York, N. Y.

STONEHOUSE SIGNS say KEEP OUT...

In and around a busy plant, there are scores of places where a safety conscious or security conscious management must say KEEP OUT . . . and say it with real authority. The proper sign, from STONEHOUSE, warns trespassers or unauthorized personnel and visitors of restricted, closed or dangerous areas . . . lets them know unmistakably where they may or may not go.

Each sign is made of enduring, tested materials, and is manufactured in accordance with American Standard specifications.

✻ *Write today for our free, full-color, 64 page catalog of thousands of ready-to-ship safety signs, plus information about custom-printed signs to meet your special needs.*

"Signs since 1863"

Stonehouse SIGNS

STONEHOUSE SIGNS, INC., Stonehouse Building, 9th and Larimer, Denver 4, Colorado

(For details, use Key # E-19 on card on page 1)

MERCUROCHROME®

for first aid

Neglect may cause infections, which can be prevented by prompt use of Mercurochrome.

No antiseptic has been proved to be more effective than Mercurochrome.

Thirty-seven years of extensive clinical and lay use has proved the value of this popular antiseptic

(For details, use Key # E-20 on card on page 1)

HYNSON, WESTCOTT & DUNNING, INC.

BALTIMORE 1, MARYLAND

Thantis® LOZENGES

First aid for throat irritations . . .

Thantis Lozenges relieve pain promptly—reduce infection—act prophylactically. Sore throats due to coughs and colds, if neglected, may result in lost man hours of work.